Europress Enterprise

The best-selling Acorn magazine in the world

ACORN USER



GRAPHICS

The complete guide for the Acorn artist

9 pages of education coverage

ImageBank Demo MARCH 1994
Fantastic sprite compression

The best graphics demo ever: Real time 3D shading

Keystroke Key shortcuts on the desktop

ArtWorks clip art
From Kingfisher Graphics

THE ACORN USER DISC
ALL THIS AND MUCH, MUCH MORE
VIRUS CHECKED

REVIEWED INSIDE

- OCR packages
- Fireworkz
- Project Management
- The latest games and more...

£2.95 MARCH 1994
ISSN 0263-7456
03>
9 770263 745031

NDERFUL WORLD OF *MultiMedia*

Meet the MultiMedia Professionals
In the world of video film making, in education and training, or in DTP, Wild Vision products provide hard- and software solutions for amateurs and professionals alike. Contact us now for your demonstration disc, complete with example images and audio samples, and for full product details.



All Trademarks acknowledged

Acorn Replay ™

The Acorn Replay logo is a trademark of Acorn and used under licence.

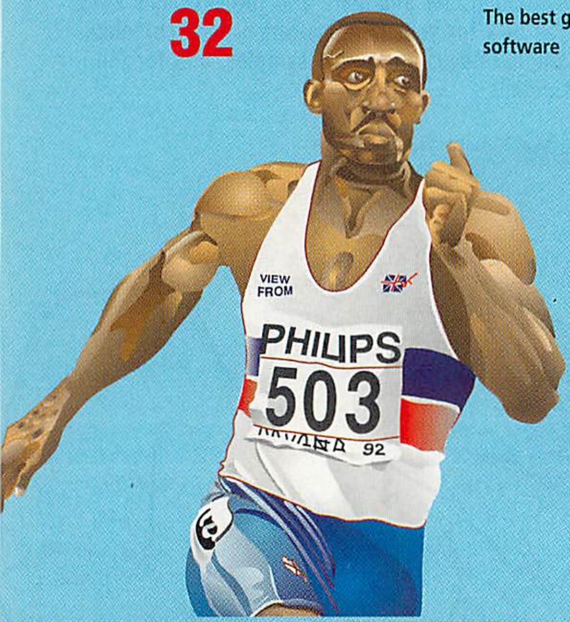
£249 YOUR CARD

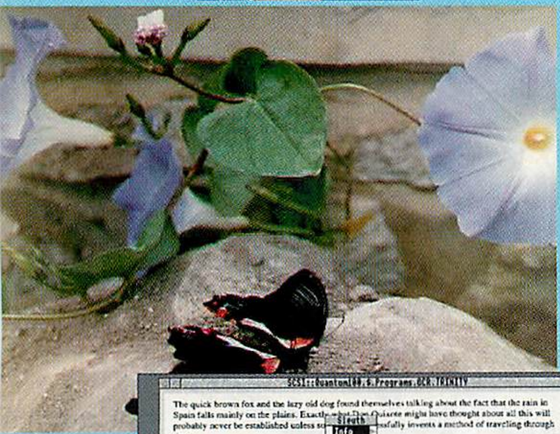
1. Eagle M2 : the definitive audio/video capture and playback tool
2. Lark : CD-quality 16-bit stereo audio sampling and playback plus MIDI
3. Hawk V9 MKII : real-time colour video digitiser with hardware dithering
4. ScanLight Video 256 : combined 8-bit greyscale video digitiser and scanner
5. GreyHawk : real-time 8-bit greyscale video digitiser - only £99
6. Chroma 500 : high-resolution digital genlock and overlay card
7. Chroma-Genlock : our popular genlock and overlay package - only £249
8. ColourCard : the graphics accelerator card for the Archimedes

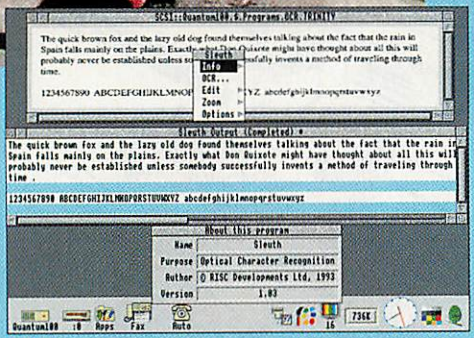
Orders for all products are accepted subject to Wild Vision's Standard Terms & Conditions of Sale

Wild Vision Ltd.,
15 Witney Way, Boldon Business Park,
Boldon Colliery, Tyne & Wear
NE35 9PE, England.
Tel: 091 519 1455
Fax: 091 519 1929

CONTENTS







Cover painting of `Barges passing a lock on the Stour' by John Constable used courtesy of The Bridgeman Art Library private collection, London

REGULARS

REVIEWS

Editor Mark Moxon
Production Editor Judith Chapman
Art Editor Carl Fox
Contributing editors
Ian Burley (News) Sam Greenhill (Games) Jack Kreindler (Graphics) David Dade (Comms) Paul Wheatley (Public Domain)Geoff Preston(Education)
Advertisement Managers
Emma Barr& Lisa Bracewell

Ad Production Wendy Binnersley
Marketing Manager Lucy Oliver
Production Manager Sandra Childs
Circulation Director David Wren
Distribution COMAG (0895) 444055
Subscriptions Galleon (0483) 727762
Chairman Derek Meakin
Managing Director Ian Bloomfield

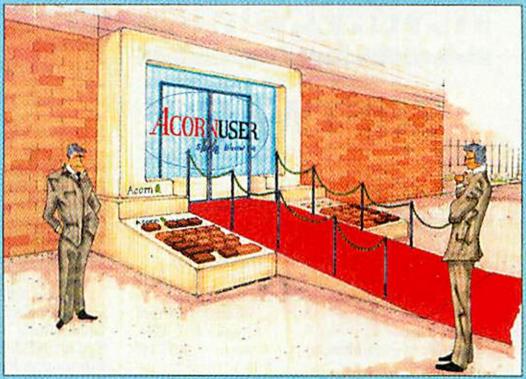
Member of the Audit Bureau of Circulation
Acorn User is an independent publication and Acorn is not responsible for any of the articles in this issue or for any of the opinions expressed

Published by Europress Enterprise Ltd, Europa House, Adlington Park, Macclesfield SK10 4NP Tel: 0625 878888
Printed by Passmore International, Basildon

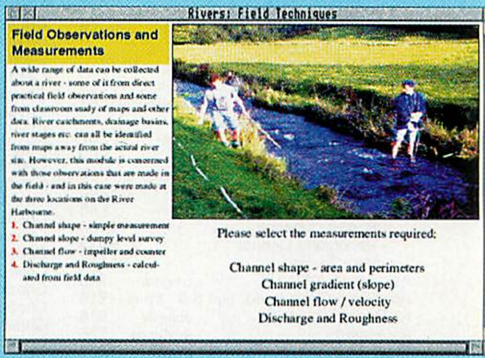
FEATURES

GRAPHICS SPECIAL

HANDS ON



29 The Acorn User Spring show



84 The Horizon Project



42 Monitor round-up

Next issue on sale 28 March

Editor's letter

When the ARchimedes first hit the world back in 1987 it was regarded as very strong in the graphics department and despite advances in other markets, 32-bit Acorns can be expanded to compete with the best PCs and Macs.

With a bit of careful thought and shrewd investment, you can turn your Acorn into a seriously powerful graphics machine. In this issue we look at the best software for budding graphic artists, the best monitors for use with Acorns, which image grabbing hardware you should look at, and what we can expect from the future in Acorn graphics. It's exciting stuff indeed...

Mark Moxon,
Editor

ICS

051-625 1006

SOFTWARE

MARCH 1994

Title	Publisher	Price
10 out of 10	10 out of 10	
– Dinosaurs, Driving Test, Early Essentials (-6), English (6-16), French (6-16), Junior Essentials (5-11), Maths Algebra (6-16), Maths Number (6-16), Maths Statistics (6-16)	each	£19
– German, Italian, Science, Spanish	each	£POA
1st Paint	Resource	£34
1st Word Plus Manual	Acorn	V0 £10
2067 BC	Oregan	£18
2067 BC + Entropy	Oregan	£26
3D Construction Kit	Krisalis	£9
A3000 Technical Reference Manual	Acorn	V0 £33
A4 Technical Reference Manual	Acorn	V0 £67
A5000 Technical Reference Manual	Acorn	V0 £67
ABC Version 3	Oak	£69
Acheton / Kingdom of Hamil	Topologika	£17
Accounts	ACS	£245
Acorn Advance	Acorn	£88
– Primary Licence		£183
– Secondary Licence		£442
– User Guide		V0 £11
Advantage, KS2,3	Longman	£45
Adventure Playground, age 5-8	Storm	£19
Air Supremacy	Superior	£18
Aldebaran	ArcAngels	£26
Almanac 3	Stallion	£69
AlphaBase	Clares	£37
Alpha-Sound	Xavier	£29
Alpha-Tracks	Silicon	£74
Amazing Maths, KS1-4	Cambridgeshire	£19
Amazing Ollie, age 4+	Storm	£14
Ancestry, KS3,4	Minerva	£59
Ancient Egypt	Oak	£44
Ancient Egyptians, age 7-11	Storm	£POA
Animated Numbers, age 3-6	Sherston	£22
ANSI C Release 4 User Guide	Acorn	V0 £25
Arcade 3	Clares	£12
ArcComm 2	Longman	£47
ArcDFS	Dabs	£22
Arc Embroidery	TechSoft	£148
ArcFAX	David Pilling	£19
ArcFS 2	Vertical Twist	£20
Archimedes Assembly Language	Dabs	V0 £15
– with disc		£22
Archimedes Game Maker's Manual	Sigma	V0 £15
Archimedes Operating System (not OS3)	Dabs	V0 £15
– with disc		£22
Architech	Aspex	£165
Archivist Pro	Oregan	£38
Archway 2	Simtron	£78
ArcLight	Oak	£44
Arcol Desktop	Aspex	£49
Arcounts Manager	Visionscan	£269
ARC-PCB	Silicon	£96
– Professional	Silicon	£213
– Schematics	Silicon	£289
ArcSpell 1	Xavier	£29
ArcSpell 2	Xavier	£29
Arcterm 7	Serial Port	£59
ARCticulate	Fourth Dim	£19
ARCtist	Fourth Dim	£19
ArcTrivia	Moray	£21
Arcventure – I ... The Romans, age 10-12; II ... The Egyptians, age 8-9; III ... The Vikings, age 7-11 – each	Sherston	£30
Around the World in 80 Days, age 9-14	Sherston	£POA
Artisan 2	Clares	£43
Art Machine Pack 1	Topologika	£29
ArtSchool	Micro Studio	£25
ArtWorks	CC	**£118**
– network licence		£650
– site licence		£545
ArtWorks CD	CC	£165
ArtWorks Made Easy	Dabs	V0 £15
Astro	Topologika	£30
Atelier, KS2-4	Minerva	£60
AudioWorks	CC	£45
AUN/Level 4 Fileserver	Acorn	£395
Avon & Murdac	Topologika	£16
Axis	TBA	£19
Aztecs, age 7-11	Sherston	£37
Badger Trails, age 9-11	Sherston	£37
Bambuzle + Blitz	Arxe	£20
Basic Wimp Programming	Dabs	V0 £15
Battlechess	Krisalis	£21
Battle of the Somme	Oak	£44
Battle of the Somme with Video Disc	Oak	£89
Battletank	Minerva	£9
BBC Basic Reference Manual	Acorn	V0 £22
Beginner's Guide to Wimp Programming on the Archimedes	Sigma	V0 £13
Birds of War	Fourth Dim	£25
Birthday Present	Topologika	£POA
Bitfolio Cartoon Graphics	Look	£24
Black Angel	Fourth Dim	£26
BlowPipe	Leading Edge	£14
Bodywise, age 9-14	Sherston	£38
Bookstore	ESM	
– Primary, KS1,2	ESM	£40
– Secondary, KS3,4	ESM	£59
– Welsh Primary, KS1,2	ESM	£61
– Welsh Secondary, KS3,4	ESM	£81
Break 147 & Superpool	Fourth Dim	£25
Britain by Rail	Fisher-Marriott	£19
Budget DTP	Dabs	V0 £13
Bug Hunter / MoonDash	Minerva	£10
Bug Hunter in Space	Minerva	£10
Business Accounts	Minerva	£275
C (new edition)	Dabs	V0 £16
– with disc		£24
CableNews	Lingenuity	£128
CADet, KS3,4	Minerva	£128
Cambridge Pascal	Oak	£69
Cardmania	CIS	£POA
CardShop	Clares	£19
Carnage Inc.	Fourth Dim	£20
Cartoon Collection	Micro Studio	£16
Casino	Minerva	£11
Castle Life	Oak	£44
Castle of Dreams, age 7-11	Storm	£20
Cataclysm	Fourth Dim	£16
Caverns	Minerva	£10
CD Français	Oak	£94
Chameleon (new version)	4mation	£33
Champions Compilation	Krisalis	£21
Charts & Graphs	Computer Tutorial	£17
ChartWell	RISC	£23
Chatter	4mation	£35
Chequered Flag	CIS	£POA
Chess 3D	Micro Power	£19
Children's Graphics	Micro Studio	£16
Chocks Away Compendium	Fourth Dim	£27
Chopper Force	Fourth Dim	£21
Christmas Adventure, age 5-8	Storm	£20
Christmas Allsorts, age 7-16	Sherston	£16
Chuck Rock	Krisalis	£19
Cistercian Abbeys	Oak	£44
ClassPrint LD	Oak	£68
Clip Art CD	CC	£20
Clip Art Collection	Vertical Twist	£22
Clip Art Set 1, drawfiles	Midnight	£26
Clip Art Set 2, drawfiles	Midnight	£26
Clip Art Vol 3 (Animals)	Graphics Factory	£12
CNC Designer V3 for Lathe	TechSoft	£343
CNC Designer V3 for Lathe and Miller	TechSoft	£493
CNC Designer V3 for Miller	TechSoft	£343
Coffee, age 9+	Storm	£28
Colour Screen»Mac	Human	£90
– Arc/Mac Cable	Human	£24
ColourSep	ICS	£15
– site licence		£45
ColourSep Starter Packs	ICS	
– DeskJet 500 (Mono)		£55
– site licence		£85
– BJ-10 with Cartridges		£85
– site licence		£115
– BJ without Cartridges		£40
– site licence		£70
Compression	CC	£34
Computer Basics	Computer Tutorial	£17
Concept Designer, KS3,4	Longman	£21
Conjuguez	Creative	£25
Connections, age 5-8	Sherston	£27
Control Logo, KS1-4	Longman	£21
Converta-Key	Triple R	£9
Countdown to Doom / Return to Doom / Philosopher's Quest	Topologika	£25
Craftshop 1	4mation	£19
Craftshop 2	4mation	£19
Creator II	Alpine	£46
Cross-32 Meta-Assembler	Baildon	£125
– manual for evaluation	Baildon	V0 £15
Crystal Maze, age 7-70	Sherston	£29
Crystal Rain Forest, age 8-11	Sherston	£35
Cyber Chess	Fourth Dim	£26
Cyborg	Alpine	£19
Cycloids	GamesWare	£16
Darryl the Dragon, KS1,2	4mation	£18
– Activity Sheets		£10
DataGraph	Topologika	£29
DataPower	Iota	**£124**
DataVision	Silicon	£72
DataVision Lite	Silicon	£42
DataWord	Triple R	£15
DBEdit	4mation	£28
Decorated Alphabet, sprites	Micro Studio	£17
Demon's Lair	Fourth Dim	£20
Designer V3	TechSoft	£193
Designer Intro (not OS 3)	TechSoft	£75
Designer's Graphics, draw/sprites	Micro Studio	£16
DeskEdit2	RISC	£25
Desktop Assembler	Acorn	£119
Desktop C	Acorn	£180
Desktop Folio, KS1-4	ESM	£65
Desktop Folio Curriculum Packs, KS2+: Christmas, Editors, Maths, Space, World War II	each	£24
Desktop Folio – Welsh, KS1-4	ESM	£87
Desktop Office v2, KS2-4	Minerva	£49
Desktop Publishing on the Archimedes	Sigma	V0 £14
Desktop Thesaurus	RISC	£17
Desktop Tracker	Vertical Twist	£50
Digital Symphony	Oregan	£41
Dinosaur Discovery, KS2	4mation	£25
– site licence		£54
Disc Rescue	Look	£28
Dragonball	TBA	£13
DrawBender	ICS	£10
– site licence		£30
!Draw_Help, age 13+	Sherston	V0 £16
Draw Print & Plot	Oak	£29
Dreamwave, age 14+	EMR	£34
Droom	Resource	£24
Dust	Resource	£29
DTP Graphics 2 Colour	Micro Studio	£8
DTP Seeds	4mation	V0 £8
Dungeon	Fourth Dim	£26
Easiword v2, KS2-4	Minerva	£43
EasiWriter 2	Icon	£115
– Dictionaries: Danish / Dutch / French / German / Italian / Norwegian / Spanish / Swedish / Swiss German	each	£30
Easy C	RISC	£43
Ego: Repton 4	Superior	£18
Elite	Hybrid	£32
EluciData (OCR)	Irlam	£155
– bought with Irlam Scanner		£79
Enter the Realm	Fourth Dim	£18
E-numix	CIS	£POA
Equasor	CC	£37
Ethnic Borders	4mation	£10
E-Type Compendium	Fourth Dim	£18
Euclid	Oak	£49
Eureka 2	Longman	£95
Event	ExpLAN	£21
ExcellonDrill	Silicon	£55
Exotic Adventures of Sylvia Layne	Fourth Dim	£20
Express	Midnight	**£35**
Eye for Spelling, KS1,2	ESM	£35
Family Favourites (not OS 3)	Minerva	£11
Farmer Giles	Computer Tutorial	£16
Farmer Giles II	Computer Tutorial	£16
Fervour	Clares	£19
FilmMAKER	Silicon	£60
– education price		£49
Find It!	Appian	£29
Fireworkz	Colton	**£125**
First Impression	Word Processing	£28
First Logo, KS1,2	Longman	£21
First Page, KS2-4	Longman	£45
First Steps in Programming Acorn RISC OS Computers	Sigma	V0 £15
First Words and Pictures	Chalksoft	£21
First Words with Smudge, age 4+	Storm	£20
Fish, Jinxter and Corruption	CIS	£POA
Flexifile, KS3,4	Minerva	£69
Flight Path, age 9+	Storm	£27
Flight Sim Toolkit	Simis	£31
Flossy the Frog, KS1	4mation	£23
– site licence		£48
Fontasy	ICS	£15
– site licence		£45
Fontasy / DrawBender / Placard	ICS	£30
– site licence		£80
Font Directory	Look	£28
FontFX	Data Store	£9
– site licence		£70
Font Pack – Newhall, Starter, Symbol – each pack	Acorn	£35
Font Pack – Avant Garde, Bookman Pembroke – each pack	CC	£24
Food for Thought, age 7-16	Sherston	£16
F.R.E.D.	GamesWare	£16
Freddy's Folly (not OS 3)	Minerva	£8
Freddy Teddy	Topologika	£15
– Balloons & The Zoo	Topologika	£20
– The Playground	Topologika	£25
– The Puddle & The Wardrobe	Topologika	£20
Freddy Teddy's Adventure	Topologika	£15
Frontier 2000, KS2-4	Cambridgeshire	£49
Frontier 2000 CD rom, KS2-4	Cambridgeshire	£79
Fun School 3	Europress	
– age -5, age 5-7, age 8+	each	£18
Fun School 4	Europress	
– age -5, age 5-7, age 7-11	each	£18
Galactic Dan	Fourth Dim	£15
Games Wizard - The Apprentice	GamesWare	£17
Games Wizard - The Sorcerer	GamesWare	£24
Genesis II	Oak	£99
Genesis Professional	Oak	£115
Genesis Project	Oak	£48
Genesis SDK	Oak	£750
GerberPlot	Silicon	£54
Giant Killer, age 10+	Topologika	£20
Giant Killer Support Disc	Topologika	£15
Glimpse	Sherston	£10
Gods	Krisalis	£19
Good Impression	Word Processing	£25
Granny's Garden	4mation	£23
– site licence		£48
Granny's Garden Resource Pack	4mation	£15
Granny's Garden Welsh (Gardd Nain)	4mation	£23
– site licence		£48
GraphBox	Minerva	£57
GraphBox Professional	Minerva	£104
Graphics on the ARM Machines	Dabs	V0 £15
Graph_IT	Sherston	£19
Greeks, KS2	Oak	£44
Greeks Resources Disc	Oak	£15
Greetings Graphics, draw/sprites	Micro Studio	£16
Gribbly's Day Out	Coin-Age	£19
GridIT	Widgit	£30
Grievous Bodily 'ARM	Fourth Dim	£15
GuardianPro	Digital Phenomena	£14
Guile	Dream	£22
Hard Disc Companion II	RISC	£38
Hatchback	4mation	£30
Haunted House	Fourth Dim	£20
Hearsay II	RISC	£69
Heimdall	Krisalis	£22
HelixBasic	PDK	£79
!Help 3, age 13+	Sherston	V0 £11
HeroQuest	Krisalis	£22
Hilighter, age 8-16	Sherston	£32
History Costume, sprites	Micro Studio	£16
Holed Out Compendium	Fourth Dim	£18
Home Accounts	Minerva	£34
House of Numbers	Chalksoft	£20
Hoverbod (not OS 3)	Minerva	£11
Humanoids and Robotix	CIS	£POA
Ibix the Viking (not OS 3)	Minerva	£11
I^2C SWI	Baildon	£15
– bought with Oddule		£5
Illusionist	Clares	£41
Illustrators' Graphics, draw/sprites	Micro Studio	£16
Image Animator	Iota	£48
Image Outliner	Iota	£48
Imagery	Palette Studio	£65
Imagine Version 2	Topologika	£39
Impact!	Circle	£47
Impact! Demo	Circle	£2
ImpactPro	Circle	£64
Impression + free upgrade to Publisher	CC	**£115**
– network version		£650
– site licence		£540
– extra hardware key for sites only		£15
– extra manual for sites only		V0 £8
Impression	Dabs	V0 £14
– with disc		£17
Impression Borders	CC	£19
Impression Business Supplement	CC	£39
Impression Junior + free upgrade to Style	CC	£63
– site licence		£435
– extra manual for sites only		V0 £7
Impression Publisher	CC	£135
– OPI Supplement		£225
Impression Style	CC	£85
Insight, KS2-4	Longman	£59
Interdictor 2	Clares	£26
Investigating Local Industry	Oak	£94
Investigator III	Vertical Twist	£48
IronLord / Tower of Babel / Twin World	UBI Soft	£22
Isle of Wight	Computer Tutorial	£20
IT in the Real World	Oak	£29
Ixion	GamesWare	£16
Jahangir Khan Squash	Krisalis	£9
James Pond	Krisalis	£19
James Pond 2 - RoboCod	GamesWare	£21
Jet Fighter	Minerva	£10
Jiglet	4mation	£19
Jigsaw	4mation	£19
Junior Database, KS1-3	Iota	£45
Junior PinPoint, KS1,2	Longman	£25
Karma	Periscope	£20
Keyboard Player	Chalksoft	£17
Keyboard Trainer, KS2-4	Minerva	£74
Keylink Prolog	Keylink	£69
Keystroke	Quantum	£28
KiddiCad	Oak	£44
Kid Pix, KS1,2	ESM	£35
Killerbugs	CIS	£POA
Killerbugs, Serpents & Humanoids and Robotix	CIS	£POA
Knowledge Organiser 2	Clares	£79
Krisalis Collection	Krisalis	£21
LabelBase	Digital Phenomena	£49
Landmarks. KS2,3 – Aztecs, Civil War, Columbus, Egypt, Elizabeth I, Rain Forest, Second World War, Victorians – each	Longman	£21
Landscapes	Longman	£47
Langdale, KS3	Creative	£98
Last Days of Doom & Hezarin	Topologika	£17
Last Ninja	Superior	£19
Lemmings	Krisalis	£19
Lemmings II (Tribes)	Krisalis	£22
Letters	Oak	£44
Letters and Pictures	Chalksoft	£18
Lexicon – French, German –each	Stallion	£33
Lexicon – Russian	Stallion	£42
Limpets	Computer Tutorial	£17
Linkword – French, German, Spanish – each	Minerva	£34
Little Red Riding Hood, age 5-8	Selective	£13
Logo, KS1-4	Longman	£55
LogoPlotter	Longman	£20
Lotus Turbo Challenge 2	Krisalis	£19
Maddingly Hall	Minerva	£8
Mad Professor Mariarti	Krisalis	£9
Magic Pockets	Renegade	£20

Magpie	Longman	£50
Mah-Jong, Crisis & Fireball	CIS	£POA
Manchester United	Krisalis	£9
Manchester United Europe	Krisalis	£19
Mapper	Computer Tutorial	£20
Maps and Landscapes 1	Chalksoft	£19
Maps and Landscapes 2	Chalksoft	£19
Mark Master	Chalksoft	£67
Master Break	Superior	**£8**
Masterfile III	RISC	£43
Maths Card	Creative	£48
Maths Odyssey	Computer Tutorial	£40
Maths Sieve	Computer Tutorial	£16
Mayhem	CIS	£POA
Mayhem, CardMania, E-Numix	CIS	£POA
Mazes, drawfiles	Micro Studio	£16
Mental Maths & Memory Magic	CIS	£POA
MicroDrive Designer	CIS	£POA
MicroDrive Designer, MicroDrive II & Chequered Flag	CIS	£POA
MicroDrive II	CIS	£POA
Micro Music	Fisher-Marriott	£19
MicroSpell 3.XX	David Pilling	£5
MicroStudio, age 7+	EMR	£67
Micro Trader Accounts	PRES	£270
MiG-29 Fulcrum	Krisalis	£9
Military History, sprites	Micro Studio	£16
Minisheet, KS1-2	Topologika	£29
Minotaur	Minerva	£8
Missile Control	Minerva	£8
Mogul	Oak	£24
Money Matters	Triple R	£15
Monotype Fonts (Pack 1)	Look	£76
Morpheus	Oregan	£29
Movaword	Chalksoft	£17
MultiFS	Arxe	£27
Multistore, KS3,4	Minerva	£105
Music Box	Topologika	£31
Myth of Moby Dick	Topologika	£27
Nature Graphics, draw/sprites	Micro Studio	£16
Naughty Stories (5-7) (set of 6)	Sherston	
– Volume 1		£44
– Volume 1 primary site licence		£99
– Volume 2		£44
– Volume 2 primary site licence		£99
Navigator	Topologika	£44
Nebulus	Krisalis	£19
Newton	Longman	£18
NightSky	Clares	£63
Noddy's Big Adventure	Jumping Bean	£19
Noddy's Playtime	Jumping Bean	£19
Noot	4mation	£41
Noot Art Disc	4mation	£10
Notate, KS2-4+	Longman	£50
Note Invaders	Chalksoft	£20
Number 62 Honeypot Lane	Resource	£29
Numbers and Pictures	Chalksoft	£18
Numberscope	Fisher-Marriott	£19
Number Tiles	Topologika	£29
Number Zoo, age 3-6	Selective	£14
Numerator, KS3,4	Longman	£33
Numerator Chaos, KS3,4	Longman	£18
Oak Logic	Oak	£69
Oak PCB	Oak	£69
OakTape Backup Software	Oak	£73
Oh No! More Lemmings (requires Lemmings)	Krisalis	£15
Ollie Octopus' Sketchpad, age 4+	Storm	£14
Omar Sharif's Bridge	Krisalis	£22
Orion	Minerva	£8
Orrery	Spacetech	£93
Ovation	RISC	£84
Overload	Clares	£13
Oxford Reading Tree Stage 2 Story Books, age 5-7	Sherston	vo £9
Oxford Reading Tree Stage 2 Talking Stories, age 5-7	Sherston	£38
Pacmania	Krisalis	£9
Padlock	ICS	£10
– site licence		£30
Pandemonium, KS1,2	Topologika	£34
Pandora's Box	Fourth Dim	£18
Pappus	Computer Tutorial	£17
Paradroid 2000	Coin-Age	£20
Payroll Manager	Silicon	£79
PC Emulator 1.8	Acorn	£95
PDT	Oak	£149
PenDown, KS1-3	Longman	£46
PenDown Etoiles, KS3,4	Longman	£46
PenDown Outline Fonts	Longman	£17
PenDown Plus, KS2-4	Longman	£67
Personal Accounts V2	Apricote	£29
Perspectives	TechSoft	£54
Pesky Muskrats	Coin-Age	£19
Phonic Games	Fisher-Marriott	£28
Photopia	CIS	£POA
Picture Book	Triple R	£15
Picture It!	Appian	£29
– Topic discs	each	£9
PIMS	Longman	£339
PinPoint 2, KS3,4	Longman	£84
– site licence		£340
PipeDream 3	Colton	£72
PipeDream 4	Colton	£97
PipeDriver Dot 1	ICS	£10
Pipe Mania	Empire	£18
Pirate, age 8-14	Chalksoft	£19
Placard	ICS	£10
– site licence		£30
Plague Planet	Alpine	£13
PlayBack	RISC	£18

Play It Again Sam 1	Superior	£20
Play It Again Sam 2	Superior	£20
Plot	Clares	£65
Podd, KS1,2	ESM	£27
Podd – Welsh, KS1,2	ESM	£40
Polyominoes	Topologika	£24
Populous	Krisalis	£22
Poster	4mation	£75
PowerROUTER	Silicon	£159
Powermonger	Krisalis	£22
Prehistoric Animals, sprites	Micro Studio	£16
Premier	Circle	£71
– DataBase	Circle	£25
– WordProc	Circle	£25
Presenter GTi	Lingenuity	£66
Primary Nature	Oak	£44
PrimeArt, KS1-4	Minerva	£68
PrimeMover, KS2-4	Minerva	£75
PrimeSolver, KS1-4	Minerva	£POA
PrimeWord, KS2-4	Minerva	£51
Printer Drivers, RISC OS: Canon BubbleJet, Canon LBP, Canon PJ1080, ColourCel, Epson JX, Epson ESC-P2, HP, Integrex 132 – each	Oak	£15
Deskjet 500C, Epson / Star colour – each	RISC	£15
ProDrivers: Canon LBP8, Epson ESC-P2, HP Colourjet – each	Oak	£34
TurboDrivers: Canon, Epson Stylus 800, HP – each	CC	£42
Printer Spooler	Oak	£68
ProArtisan 2	Clares	£102
ProCAD, KS4	Minerva	£394
Programming in ANSI Standard C on the Archimedes	Sigma	vo £15

POSTAGE IS FREE
FOR PREPAID SALES IN THE UK

Prophet (requires 2 Mb)	Apricote	£145
Prophet Entry Level	Apricote	£10
ProSHEET	Apricote	£36
Protext	Arnor	£117
Provocator	Computer Tutorial	£15
Puncman 1 and 2	Chalksoft	£17
Puncman 3 and 4	Chalksoft	£17
Puncman 5 to 7	Chalksoft	£18
Punctuate	Xavier	£31
Punctuate!	Topologika	£20
QDBug	Vertical Twist	£68
QPaint	CIS	£POA
Quark	Oregan	£22
Quest for Gold	Krisalis	£19
QuicKey	ICS	£10
– site licence		£30
Raw Power II	GamesWare	£16
Really Useful CD Rom Vol.2	APA	£48
Real McCoy 2	Fourth Dim	£23
Real McCoy 3	Fourth Dim	£23
Real McCoy 4	Fourth Dim	£27
Recall, age 8-13	Sherston	£37
Redshift	Minerva	£10
RemoteFS Parallel Port	Atomwide	£50
Render Bender 2	Clares	£41
Rephorm	Oak	£47
Report Writer	Creative	£48
Repro	Oak	£49
Repton 3	Superior	£19
Resultz	Colton	**£97**
– secondary site licence		£470
Revelation	Krisalis	£9
Revelation 1, KS2-4	Longman	£33
Revelation 2, KS2-4	Longman	£65
Revelation 2 CD Rom	Longman	£84
Revelation ImagePro	Longman	£118
Reversals	Chalksoft	£17
Rhapsody 2	Clares	£44
Rhapsody 3	Clares	£78
Rhythm-Bed	Clares	£38
RhythmBox II, age 8+	EMR	£34
RiscBASIC Compiler	Silicon	£77
RiscForth Compiler	Silicon	£72
RISC OS 3 First Steps	Dabs	vo £15
RISC OS 3 Programmer's Reference Manual	Acorn	vo £105
RISC OS Style Guide	Acorn	vo £13
RoboLogo	Silicon	£38
Round the World Yacht Race, age 9+	Storm	£25
Saloon Cars Deluxe	Fourth Dim	£25
– Deluxe Extra Courses		£14
Saxon Life, KS2	Oak	£44
S-Base 2 Developer	Longman	£193
S-Base 2 Developer Plus	Longman	£322
S-Base 2 Personal	Longman	£109
S-Base Network	Longman	£254
Schedule	Acorn	**£18**
Schema 2	Clares	£99
Science, drawfiles	Micro Studio	£25
Score Draw	Clares	£44
Scorewriter PMS Desktop, age 12+	EMR	£147
ScreenPlay	Widgit	£35
ScreenTurtle version 2	Topologika	£45
Search and Rescue, age 9+	Storm	£27
Seashore Guide, drawfiles	Micro Studio	£16
Seelinks – Ourselves, KS1,2	ESM	£31
Seelinks – Pond Watch, KS2	ESM	£37

Seelinks – Tourism, KS3	ESM	£55
Seelinks – Transport, KS2	ESM	£37
Sellardore Tales, age 10-12	Sherston	£24
Sensible Soccer	Renegade	£21
Serenade	Clares	£84
Serpents	CIS	£POA
Settlement, KS3	ESM	£34
ShapeFX	Data Store	£10
ShareHolder	Silicon	£96
ShareHolder Professional	Silicon	£164
Shares	Apricote	£33
ShowPage	CC	£143
Shylock Gnomes, age 10-15	Selective	£16
Sim City	Krisalis	£22
Simon the Sorcerer	GamesWare	£31
SkyHunter, KS2	Longman	£21
Sleuth	RISC	£42
Small	Virgo	£20
smArt	4mation	£50
smArt Aliens, Animals, Dinosaurs, Egypt, Europe†, Faces*, Fantasy, Fashion, Fiddles & Drums, Heraldry, Homes*, Leisure*, Look Smart, Smartoons, Trees and Gardens *English/French/German/Spanish/Welsh; †English/French/German; please specify each	4mation	£15
smArtFiler	4mation	£32
smArt Modern Languages	4mation	£19
Smudge the Spaniel, age 4-8	Storm	£20
Snippet (new version)	4mation	£32
Soapbox	Xavier	£34
SolidCAD	Silicon	£77
SolidsRender	Silicon	£77
SolidTools	Silicon	£204
– education price		£194
Somerset Talking Computer Project Learning Materials	Longman	vo £29
SongBook, age 3-10	EMR	£24
Sound Engineer, age 12+	EMR	£59
Sound-FX Maker	CIS	£POA
Sound-FX Maker & Photopia	CIS	£POA
Sounds & Rhymes	Xavier	£29
Spark	David Pilling	£5
SparkFS	David Pilling	£20
Sparkle	Morley	£59
Special	ICS	£10
– site licence		£30
Speech!	Superior	£18
Spelling week-by-week	Chalksoft	£20
Spex	Aspex	£98
Spheres of Chaos	Matt Black	£19
Splash, age 7-11	Sherston	£19
Splice	Oak	£29
Split an Image, age 7-16	Sherston	£16
Spoken Word	Wyddfa	£18
Spooler (Clares)	Clares	£12
Spooler (Comp Tut)	Computer Tutorial	£9
Sporting Triangles	CDS	£19
SportsDay	Selective	£20
SportsPeople	Selective	£20
Sprite Editor	Computer Tutorial	£17
SpySnatcher	Topologika	£12
Square Route	Computer Eyes	£16
Squirrel 2	Digital Services	£127
– site licence		£545
Squirrel C Developer's Toolkit	Digital Services	£96
Starspell Plus	Fisher-Marriott	£19
StartWrite	Icon	£55
Stig of the Dump, age 9-13	Sherston	£23
StockPack	Topologika	£30
StoryBook, age 3-10	EMR	£59
Striker	GamesWare	£21
StrongED 3	Stallion	£22
Studio24Plus Version 2, age 11+	EMR	£149
Studio24Plus Version 3, age 12+	EMR	£210
Stunt Racer 2000	Fourth	£25
SUMthing	Resource	£24
SuperDump	Silicon	£20
Superior Golf	Superior	£14
SuperPlot	Silicon	£20
Swiv	Krisalis	£9
TABS	Aspex	£95
Talisman	Minerva	£8
Talking PenDown, KS1-3	Longman	£55
Talking Pictures	Wyddfa	£18
Talking Rhymes	Topologika	£37
Target Maths	Triple R	£15
Technodream (Nevryon 2)	Superior	£19
TechWriter	Icon	£159
Thinklink	Xavier	£29
ThinkSheet	Fisher-Marriott	£38
Thundermonk	Minerva	£11
Tiles	Brain Games	£19
Timeshare	Fisher-Marriott	£19
Timetabler	Minerva	£549
Time Detectives ... The Victorians, age 7-11	Sherston	£38
Time Traveller, KS2	ESM	£39
– Britain Since the 1930s, KS2		£33
– Create Your Own Timelines, KS2,3		£37
– Expansion, Trade and Industry, KS3		£39
– Making of the United Kingdom, KS3		£39
– Medieval Realms, KS3		£39
– Tudor and Stuart Times, KS2		£33
– The Victorians, KS2		£33
TinyDraw/TinyLogo	Topologika	£25
TinyPuzzle	Topologika	£20
Titler	Clares	£115
Toolkit Plus	Clares	£38
Tools Graphics, drawfiles	Micro Studio	£23
Topographer	Clares	£61
Touch Type	Iota	£38

ICS

051-625 1006

Trace	David Pilling	£5
Tracer	Midnight	£46
Transfer2	Apricote	£16
Transport, drawfiles	Micro Studio	£25
Trivial Pursuit	Krisalis	£9
Turbo Type	CIS	£POA
Turbo Type, Sound-FX Maker, E-Numix	CIS	£POA
Tween	Oak	£29
TWO (Task and Window Organiser)	ICS	£10
– site licence		£30
TypeStudio	RISC	£38
Utility Disc 1	Data Store	£8
Utility Disc 2	Data Store	£13
Utility Disc 3	Data Store	£7
Utility Collection	Data Store	£21
Vector	4mation	£75
Victorians, age 7-11	Sherston	£POA
View»Mac 3	Human	£65
– Arc/Mac Cable	Human	£24
Viewpoints, age 7-11	Sherston	£37
Viking Invaders	Oak	£44
Virtual Golf	Fourth Dim	£25
Visual Backup	Dabhand	£39
Vox Box	Clares	£44
Waiter	Digital Services	£35
Waterloo (not OS 3.1)	Turcan	£19
Whale Facts	Topologika	£20
Wordbank	Topologika	£20
Words and Pictures	Chalksoft	£19
WordWorks	CC	£36
Wordz	Colton	**£77**
World Geography Maps, draw	Micro Studio	£23
WorldMaker, KS3,4	ESM	£51
World Map Study, KS3,4	ESM	£64
World Wildlife, sprites	Micro Studio	£16
WorraCAD	Oak	£69
Worst Witch, age 7-10	Sherston	£26
Xenon 2	GamesWare	£21
Yacht 2	Computer Tutorial	£49
Yacht 7	Computer Tutorial	£94
Zarch	Superior	£14
Zelanites (not OS 3)	Micro Power	£15
Zool	Gremlin	£19

HARDWARE

COMPUTERS . . .

A3010 Action Pack	Acorn	£335
A3010 Learning Curve System	Acorn	£599
A3020 FD System	Acorn	£650
A3020 HD60 System	Acorn	£775
A4 2M FD System	Acorn	£1350
A4 4M HD60 System	Acorn	£1650
A4 Battery Pack	Acorn	£53
A4 Shoulder Bag	Acorn	£37
A5000 2M HD80 Multiscan System	Acorn	£1225
Pocket Book	Acorn	£169
– Class Pack		£1599

PRINTERS . . .

A4-1200/1 Direct Drive Laser Printer	Calligraph	£989
Bubble Jet BJ-10sx	Canon	£187
Bubble Jet BJ-10sx + TurboDriver	Canon/CC	£219
Bubble Jet BJ-230	Canon	£315
Bubble Jet BJ-300	Canon	£325
Bubble Jet BJ-330	Canon	£380
Bubble Jet BJC-600 + TurboDriver	Canon/CC	£535
Bubble Jet BJC-800 + TurboDriver	Canon/CC	£1374
DeskJet 500C	Hewlett-Packard	£279
DeskJet 510	Hewlett-Packard	£235
DeskJet 550C	Hewlett-Packard	£455
Laser Direct HiRes4	CC	£799
– 250-sheet Paper Cassette		£99
Laser Direct HiRes8	CC	£1050
Laser Direct HiRes Board	CC	£325
New toner cartridge for Canon LBP-4		£59
New toner cartridge for Canon LBP-8		£75

For ordering details please turn to page 3

ICS

051-625 1006

SCANNERS, DIGITISERS . . .

Colour Converter	*Lindis*	£145
Eagle M2	*Wild Vision*	£295
FaxScan	*Spacetech*	£94
GreyHawk	*Wild Visiion*	£98
Handipad	*TechSoft*	£193
Hawk V9 MkII Hardware Dithered	*Wild Vision*	£198
HiVision colour	*HCCS*	
– A3000 External		£157
– A3000/3010/3020/4000 internal		£144
– A5000/400300		£144
iMage (Sharp JX-100)	*Irlam*	
– for A5000		£490
– for other computers		£589
Image Scanner	*Iota*	£383
– Colour Upgrade Kit	*Iota*	£239
– Fast Parallel Card	*Iota*	£98
Pineapple Colour Video Digitiser	*Pineapple*	£195
– A3000 boxed	*Pineapple*	£230
ProImage (Epson GT6000)	*Irlam*	
– for A5000		£989
– for other computers		£1089
Scan-Light A4	*CC*	£277
Scan-Light 256	*CC*	£185
– A3000 External	*CC*	£190
– A3000 internal	*CC*	£190
Scan-Light Professional	*CC*	£565
– as above + SCSI interface	*CC*	£699
Scan-Light Video	*CC*	£208
– A3000 Series internal	*CC*	£208
Spectra	*RISC*	
– A3000 Series / A4000 Internal		£545
– A3000 External		£555
– Archimedes / A5000		£545
Vision colour	*HCCS*	
– A3000/3010/3020/4000 internal		£96
– A3000 external		£109
– A5000/400/300		£96

MISCELLANEOUS. . .

386 PC Expansion Card 25 MHz	*Aleph One*	
– 1 Mb		£POA
– 4 Mb		£POA
486 PC Expansion Card	*Aleph One*	
– 1 Mb		£POA
– 4 Mb		£POA
4-slot 4-layer Backplane	*IFEL*	£52
5315 Monitor	*Aydin*	£425
A300/400 Fan kit	*ICS*	£15
A3000 Case for Expansion Card	*HCCS*	£16
A3000 Expansion Box	*Wild Vision*	£135
A3000 Serial Upgrade	*Acorn*	£21
A5000 Fitting Kit for second hard disc	*ICS*	£15
AnDi Oddule	*Baildon*	£39
Arckey Function KeyStrip Holder	*ICS*	V0 £3
– pack of 4		V0 £10
ArcNET	*ACS*	£69
ARM3 ‡	*Aleph One/IFEL*	£165
Arm_Stick	*Arm_Tech*	£28
ColourBurst	*State*	£374
ColourCard Gold	*Wild Vision*	£225
– A3000 External	*Wild Vision*	£225
Dongle Dangle with screw fittings	*ICS*	£6
Ergo-keyboard	*Castle*	£99
Ergo-keyboard for A3000	*Castle*	£128
Fan filters (pack of 10) (not A5000)	*ICS*	£6
Floating Point Accelerator (A5000 + A540)	*Acorn*	£93
Floppy Discs, 10 × 3½" High Density		£10
Four-Colour Refill Kit		£30
HiPoint Mouse for A4	*Genius*	£49
I^{2}C Adaptor	*Baildon*	£10
I^{2}C SWI (enhanced IIC_Control)	*Baildon*	£15
– bought with AnDi Oddule		£5
ideA Removable Hard Disc Fitting Kit for A5000	*ICS*	£25
Microlin fx Pocket Fax Modem	*Pace*	£179
Micro Mouse	*Clares*	£26
Midi Expansion Card	*Acorn*	£80
Monitor Stand for A3000	*ICS*	£21
Mono/SCSI	*Atomwide*	£48
Power Pad (Dual)	*GamesWare*	£34
Power Pad (Single)	*GamesWare*	£25
Printer Port Sampler	*Vertical Twist*	£39
Printer/SCSI	*Atomwide*	£74
Publishing Pack	*CC*	£475
Revolution CD-ROM	*Morley*	£295
Revolution Pro (for SCSI system)	*Morley*	£435
RISC OS 3 Carrier Board for A310‡	*IFEL*	£21
RISC OS 3 Software Upgrade Kit	*Acorn*	£89
Seal 'n Type spill-proof Keyboard Covers		
– Archimedes / A5000	*Kador*	£14
– A3000	*Kador*	£14
TouchWindow	*Lindis*	£234
Ultimate CD ROM Dual Speed	*HCCS*	£279
Ultimate CD ROM Single Speed	*HCCS*	£219
Whisper Fan Quietener (for A300/A400 series only)	*ICS*	£15
Wizzo IDE Filing System on rom	*ICS*	
– Wizzo4 for A4		£POA
– Wizzo5 for A5000		£39
Wizzo SyQuest Complete Package		£335
– Extra 105 Mb Disc		£60

3 *Don't buy a microscope ...*

To save your eyesight and accommodate our ever-longer list we will be taking more space in this magazine next month.

Do you

use an A5000?
need to back-up data quickly?
need to carry data from one computer to another?
wish you could lock important data away easily?

Could you use 105 Mb floppy discs?

We've got some. They should really be called removable hard discs, but the difference is academic. Just install one of our SyQuest kits in your A5000 as though it were a second floppy disc drive. Now you can use 105 Mb removable discs as if they were fast floppies.

Removable discs cost about the same per megabyte as traditional floppies. Our complete package includes a drive, a fitting kit and one 105 Mb disc, formatted and tested. No soldering is required.

Each ICS kit also contains a special version of Wizzo - our own IDE filing system on rom. Acorn's filing system does not support removable hard discs (you would need to reset the machine every time you removed a disc).

Only Wizzo supports the SyQuest option.

WIZZO (it's magic)

And gives you disc partitions, password protection, and the ability to access more than 512 Mb of storage.

WIZZO SYQUEST COMPLETE PACKAGE £335

ADDITIONAL 105 MB DISCS £60 EACH • FITTING KIT ONLY £25

Wizzo5 owners: please return your rom in its original packaging and deduct £10.

MEMORY . . .

Fitting extra unless otherwise stated
† Fitting fairly easy ‡ Fitting needs expertise

A3000 1-2 Mb Upgradable †	*IFEL*	£62
A3000 1-4 Mb †	*IFEL*	£115
A3010 1-2 Mb		£45
A3020 / A4000 2-4 Mb †		£80
A310 2 Mb Upgradable soldered ‡	*IFEL*	£94
– as above + MEMC1a		£119
– as above + MEMC1a + fitting		£149
A310 4 Mb soldered + MEMC1a ‡	*IFEL*	£153
– as above + fitting		£189
A5000 2-4 Mb †	*Atomwide*	£85
A5000 2-8 Mb including fitting	*Atomwide*	£500
A5000 4-8 Mb including fitting	*Atomwide*	£391
A540 4 Mb †	*Acorn*	£238

HOW TO ORDER

VAT: Zero-rated items are marked V0. UK customers please add 17.5% to all other prices. EC customers outside the UK (including BFPO) please do the same unless you are VAT registered, in which case quote your international VAT number. Ours is GB 595 7258 84.

CARRIAGE IS FREE WITHIN MAINLAND UK IF YOU PAY ON ORDERING.

Overseas carriage: If you are paying by credit card we will add airmail and insurance at cost. Otherwise please add £6 (Europe) or at least £12 (elsewhere) for each software item and send a pounds sterling bank draft payable at a London clearing bank, or Eurocheques for not more than £100 each.

Credit cards are welcome. We do not charge your account until your order is fulfilled. Your name and address must be as known to the credit card company. If you are leaving an order on our answering machine please include your telephone number, the expiry date of your card, and your calculation of the total payment due. We will make no charge for credit card commission unless we have informed you first.

Official orders are welcome from UK government and educational institutions. Payment is due in 14 days. Invoices are subject to carriage and late payment charges.

Site licences are available for most products. Please check our prices.

All products, prices and specifications are offered in good faith and are subject to change without notice. We process all orders immediately, but suppliers do sometimes keep us waiting. Goods are guaranteed but we do not supply them on approval. Returns and cancellations can only be accepted by prior agreement and there may be a charge to cover the costs involved.

AUTHORISED ACORN DEALER

ICS (Ian Copestake Limited)

Dept B53, 1 Kington road, WIRRAL, Merseyside, L48 5ET

Tel: 051-625 1006 Fax: 051-625 1007

E&OE D61 940207

LICENSED CREDIT BROKER



NEWS FROM THE BETT SHOW



Busy crowds at the Acorn stand

DESPITE fevered expectation, Acorn did not use the BETT educational technology show at Olympia to launch the much-rumoured next-generation Archimedes. Instead, Acorn celebrated its 15th year in education by giving a number of other interesting new products an airing.

Top of the list was Acorn's new peer-peer networking system called Access. This is a workgroup networking system designed for as little as two or as many as 25 or so users, who can share files and printers without dedicating one computer as a file server.

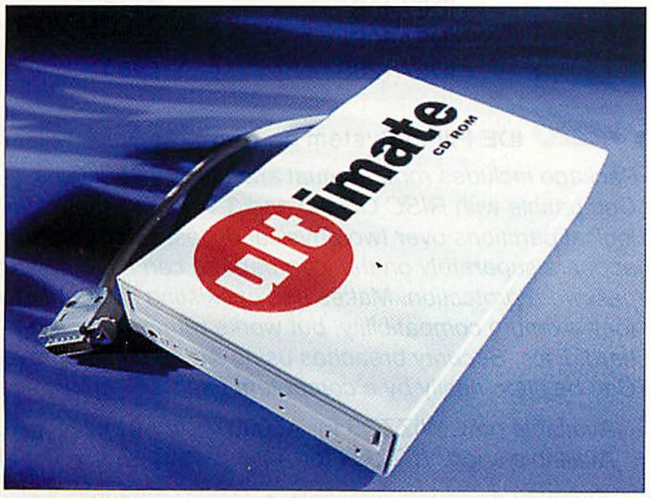
Access is extremely easy to use, especially compared to the similarly inspired Windows for Workgroups solution on PC compatibles. Acorn also showed an experimental Archimedes which can log into a Novell NetWare file server, something Acorn says could be a requirement one day.

Pocket Book users might like to know that *PocketFS 2* was launched at the show. This improved version of the A-Link file transfer and conversion application deals more effectively with the problem of DOS file name mapping, establishing and ending connections and multiple file conversion and copying.

Another new Pocket Book addition is the graphing application called *Plotter* (£29.95 plus VAT on SSD) which Acorn says is suitable for maths and science students between 11 and 16 years, plus A-level requirements.

Kodak Photo CD was being demonstrated on the Acorn stand, but there is still no official word of when it will be formally released. The other main new product at BETT from Acorn was another new 14in monitor, the AKF52, which is a slightly lower resolution version of the AKF50 multiscan monitor which was announced at Acorn World.

The AKF52 is practically identical to the AKF50 except for its screen dot pitch, which is a coarser 0.42mm compared to the AKF50's 0.28mm dot pitch. Priced at £299 + VAT, the AKF52 is £50 cheaper than the AKF50.



The new Ultimate CD-Rom drive from HCCS, released at BETT

Elsewhere, Acorn interest was abundantly evident at BETT and we even spotted two major PC software houses with A5000s on their stands: Claris was demonstrating ClarisWorks running on a PC Card and Lotus Development was giving an A5000 away as a promotional prize.

Several of the main third party Acorn names were at the show. Clares Micro Supplies was demonstrating their new *Schema 2* spreadsheet, which is compatible with Acorn's *Advance* spreadsheet.

The original version of *Schema* was not a great success and *Schema 2* aims to reverse this with a revised user interface, extended text formatting options, support for object embedding and its BBC-Basic-like macro language. *Schema 2* is to be priced at £135 inc VAT and should be available shortly.

Also from Clares, a CD-Rom version of *Pro Artisan 2*, complete with extensions for Photo CD, was shown at BETT, along with *Plot*, which was formally released at the show.

Computer Concepts and Wild Vision were present in force to show off their new Eagle M2 multimedia card, the Colour Card Gold, and *Impression Style*, as well as previewing soon-to-be-released improvements to *ArtWorks*, like 24-bit TIFF loading for example.

Over on the Iota Software stand a new client/server network version of the *DataPower* database system was being demonstrated.

HCCS had a large stand demonstrating a range of products, starting with some new low-cost single and double speed CD-Rom drives with interfaces compatible with the HCCS Ultimate Expansion System. Normal prices start at £229 and £289 and there were attractive show discounts.

The compact Ultimate expansion system now boasts interfaces for SCSI, MIDI, a sound sampler, colour and mono video digitisers, Computer Concepts' Scanlight 256-compatible scanner, analogue port and CD-Roms, plus a range of plug-in hard drives. An ethernet multipodule is on the way too.

Educational specialists Sherston Software debuted *The Oxford Reading Tree Stage 2 Talking Stories*, *Time Detectives - The Victorians* and *Bodywise*, an animated tour of the human body.

Wyddfa Software announced the winner of its competition to translate its name into English – the answer is Snowdon and the winner of £50 worth of Norwich Computer Services (another BETT exhibitor) products was Ysgol Gymraeg of Mid-Glamorgan.

Overall, BETT was an encouraging showcase for the Acorn industry.

Acorn User Show

The next big event in the Acorn scene is the Acorn User Spring Show in Harrogate.

The Show runs from 22-24 April 1994, and next month we'll tell you everything you need to know about the most imrportant show in the calendar.

Tickets are available now, and for more details turn to page 29.

ICS WIZZO (it's magic)

051-625 1006

The ideA range

ICS was the first company to offer IDE products for Acorns back in 1990; now they are the standard choice for new Acorn computers. Building on three years' experience we have continually improved our IDE filing system. It now offers the highest level of RISC OS compliance, and compatibility with at least 45 different hard discs tested by us. Can any other supplier make this claim?

Our IDEFS abolishes the RISC OS limit of 512 Mb, and offers extra features such as password protection, background operation, disc partitioning, and power saving (which allows some discs to stop spinning when idle).

Partitions can have different levels of protection. Family or pupils can access some of your files while you keep others safely out of their reach. Or you can simply protect the whole disc (reformatting is not required for this).

Our hard disc upgrade kits are based around two internal interfaces at present: IDEA3IN for the A3000 Series, and IDEARCIN for the A300/A400/A500 Series. All kits are designed to a high standard and include all the parts you will need.

IDEA3IN upgrade kits include an I²C expansion socket as standard. They come with a 2½" disc already attached, and are easy to fit once you have opened up your computer. You may safely take no notice of rumours still being spread that internal upgrades might not be safe in an A3000. We have adhered carefully to the guidelines in Acorn's technical specifications, and in three years have never come across a problem.

IDEARCIN upgrade kits provide a fast 16-bit link all the way from the computer to the hard disc. They can even be fitted to an A310 without a backplane – quite a cost saving. A second hard disc can easily be added later if required.

Interfaces and hard discs can also be bought separately. By shopping around you may even save a few pounds. But beware: not all IDE hard discs work with all interfaces, and if you have a problem it may be difficult to decide who should put it right. We recommend buying a complete kit from one source.

WIZZO is the name given to our IDE filing system when it is supplied as a single rom chip. Wizzo5 is for the A5000, and Wizzo4 is for the A4. You should buy a Wizzo if you need password protection or wish to use larger hard discs. (Wizzo4 has been delayed slightly – we are adding a feature to ensure compatibility with possible future A4 upgrades).

A Wizzo rom by itself will only produce a slight speed improvement. If you need speed in an A5000, fit an IDEARCIN interface instead. Up to 60% improvement can then be achieved, but this does depend which hard disc you use so do check with us first.

How to read our ideA product references

A number at the end is the nominal hard disc capacity in megabytes. We usually round this down, so the actual formatted capacity may be higher. All discs have auto-parking. Average access times vary but all are below 20 ms.

All prices shown exclude VAT and are subject to change without notice. The cost to us for hard discs can vary enormously from week to week – not always downwards! Your local dealer can obtain *ideA* products from us or from a distributor.

Archimedes A300/A400/A500 Series Internal Upgrades

Package includes formatted hard disc, ideA interface card, hard disc cradle and fittings, fan kit, replacement multi-purpose LED (power and drive status), manual with fitting instructions. Can be fitted to an A310 without a backplane. If a backplane is used it must be a 4-layer type. Easily fitted by most users.

IDEARCIN 40*	£175	IDEARCIN 330	£399
IDEARCIN 80*	£205	IDEARCIN 420	£499
IDEARCIN 170	£275	IDEARCIN 540	£650
IDEARCIN 240	£325	IDEARCIN 1000	£925

A3000 Series Fully Internal Upgrades

Package includes formatted hard disc mounted on ideA interface card, manual with fitting instructions. Fully internal, using internal expansion slot. Co-exists with floppy drive and memory upgrades. Fits the new 1992 computers. Easily fitted subject to Acorn warranty stipulations.

IDEA3IN 40	£175
IDEA3IN 80	£250
IDEA3IN 120	£299
A3000 FAN KIT (not usually required*)	£19

**Only required if the computer has been fully upgraded, e.g. with maximum memory AND Econet AND an external podule.*

Separates for hard disc upgrades

We can only guarantee the performance of ideA interface cards with hard discs we have tested ourselves, so please check if in doubt. If you are buying a hard disc for an A5000 please say so. If you intend to fit the disc in addition to an existing one we need to know the make and model of the existing disc. Acorn's interface does not support all makes of disc, and some models will work as a second disc but not on their own.

Hard discs on their own are listed as, for example, IDEA 80. An S at the end indicates a 2½" disc.

IDEARCIN (Archimedes Interface for Internal disc(s))	£60
IDEA3IN (A3000 Interface for Internal disc)	£75
ARCHIMEDES INTERNAL CRADLE KIT	£15
ARCHIMEDES A300 / A400 SERIES FAN KIT	£15
4-SLOT 4-LAYER BACKPLANE	£52
POWER CABLE FOR SECOND HARD DISC	£5
A5000 SECOND HARD DISC FITTING KIT	£15

IDEA40*	£125	IDEA330	£349
IDEA80*	£155	IDEA420	£449
IDEA170	£225	IDEA540	£600
IDEA240	£275	IDEA1000	£875

IDEA40S	£115
IDEA80S	£190
IDEA120S	£239

WIZZO IDE Filing System on rom

Package includes rom, manual and fitting instructions. Compatible with RISC OS 3.0 and 3.1. Allows up to four logical partitions over two physical drives. Each partition appears separately on the icon bar and can have different password protection. Makes use of existing Acorn hardware for maximum compatibility, but works with a wider range of hard discs. Security breaches using ADFS can be prevented. Can be fitted easily by a competent user.

Available now: WIZZO5 for A5000	£39
Available soon: WIZZO4 for A4	POA

Quantity discounts available • Dealer enquiries welcome

** Lower-capacity 3½" discs are now very hard to obtain. Please check availability before ordering.*

ICS (Ian Copestake Limited), Dept B50, 1 Kington road, WIRRAL, Merseyside, England, L48 5ET

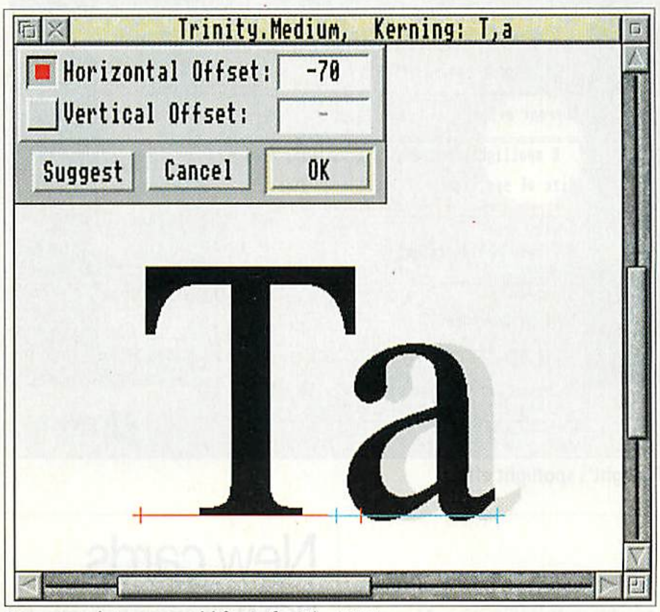
UPGRADE YOUR OLD RISC OS 2 FONTS

DESIGN Concept in Edinburgh has produced a Risc OS utility called *Kerner* to upgrade Risc OS 2 fonts to Risc OS 3 specification by processing the font data to add auto-kerning information.This is a one time process, so in theory there is no need to buy special Risc OS 3 versions of fonts you already have.

Kerning is a technique for optimising the proportional spacing between characters to make words look nicer, without unsightly gaps showing. Risc OS 3 supports auto-kerning but original Risc OS 2 fonts don't include the necessary data for this auto-kerning, though some applications support manual kerning.

Kerner lets the user specify specific character pairs to be manually kerned to one's particular taste or lets the operating system kern them automatically. Manual modifications to the results of auto-kerning are also possible using a friendly editing system. Un-kerned positions can be highlighted too.

Another utility called *Kern All* is also supplied with *Kerner*. It can request the font manager to auto-kern characters in all applications using outline fonts, even if those applications don't specifically have the ability to request it.



Kerner updates your old fonts for Risc OS 3

Kern All apparently works very well with *Draw* for text-to-path conversions. *Kerner* is priced £15 inc p&p.

Another new utility from Design Concept, priced £10, is *MouseTrap* which can re-assign or disable mouse button functions using SWI calls or a desktop dialogue box. For more information contact Design Concept at 031-668 2000.

• Hot on the heels of *Kerner* is *KernPlus* from PTW Software, also known for the *KleinFS* file compression utility. *KernPlus* is designed for editing kern data in Risc OS 3 fonts.

PTW says its user interface is easier to use than *Kerner*, and like *Kerner*, it can be used to convert Risc OS 2 fonts into auto-kerning format. *EverKern*, which forces the uses of kerned fonts throughout the desktop, is bundled with *KernPlus*. PTW includes p&p, free upgrades and a site licence in its all-inclusive £15 price. For more information contact PTW Software on (0329) 281930.

Investigating junior computing

A SURVEY carried out by BMRB International for Acorn has reinforced concerns that children are adversely affected by excessive computer gaming. 593 people were polled, of which 76% felt that children spend too much time playing computer games. 60% thought computer games could be harmful to children.

On the positive side, the survey indicates that by becoming alerted to the potential dangers, parents are making themselves more computer literate to enable home computing to be an activity which involves the whole family. At present, 58% of the households surveyed revealed that the main user of a home computer was somebody aged under 18. However, 55% of parents say they are keen to assist their children's project work and 48% believed that Acorn computers were the best all round choice for educational work as well as office and leisure activities.

Only 26% said that a PC-compatible was more suitable for educational purposes.

Acorn's Consumer General manager, Richard Percy, commented: 'Acorn commissioned the survey to examine the needs and concerns of computer users. The research clearly shows that families are worried about the effects of games-only machines in the home. People actually want a computer all the family can use capable of running video, animation, graphics, music, word processing, home accounts and much more.'

Acorn's survey follows that of another survey commissioned by educational arch-rival Research Machines, which declared that only a small minority of educationalists regarded Acorn computers as suitable for their purposes.

In brief

Maths reduction

Reduce, the popular mainframe number crunching tool, is being supplied for the Arc by Codemist. It was ported by Arthur Norman and Alan Mycroft, who were responsible for Acorn's 'Norcroft' C compiler.

Reduce is available as a professional package for £340 + VAT or in a personal package for £79 inclusive. For information contact John Ffitch on (0225) 837430 or e-mail jpff@maths.bath.ac.uk.

Barcodes

Bar code generation is the speciality of KANG Software, which has produced *Barcodes*. This can generate EAN-8 and EAN-13 bar codes, including those used for design and retailing and ISSN/ISBN codes. *Barcodes* is priced £85; contact Kell Gatherer c/o Location Works on 071-637 7766.

Magnetic move

Magnetic Image, which produces the Four Joystick Interface and the soon-to-be-released arcade game *Bowl-a-Droids*, has moved to 8 Bouchier Close, Bampton, Tiverton, Devon EX16 9AG. For more information contact (0398) 331649.

XWord updated

Panda Discs has released *XWord 1.20* after feedback from Acorn World. Additions are numerous, and the price has also gone down by a fiver to £39.95, with a site licence available for £95. Contact Panda Discs, Four Seasons, Tinkers Lane, Brewood, Staffs ST19 9DE.

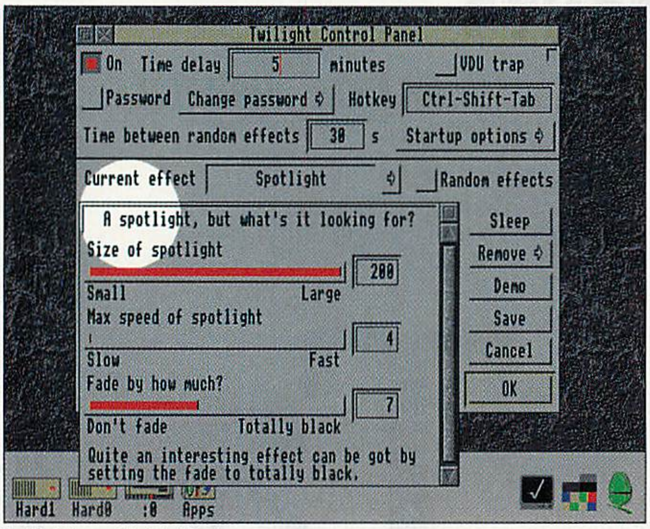
New BBC deal

Longman Logotron has secured a new six year deal to co-develop and publish software with the BBC to support BBC TV schools broadcasts. The previous deal extended between between 1990 and 1993, and helped to produce a large number of educational packages.

REALLY GOOD PROTECTION

HARPENDEN-based The Really Good Software Company (TRGSC) has upgraded its *Twilight* monitor screen protection program. *Twilight* is now fully Risc OS 3-compatible and offers a choice of 17 effects which activate after a pre-set period of inactivity.

Security is catered for with a password protection feature and there is a network version. You can write your own *Twilight* effects too. The price is £14.95 and £5 gets you a demo disc with the fiver refundable if you decide to buy. The Really Good Software Company is on Tel/Fax (0582) 761395.



Twilight's spotlight effect

Logic move

CIRRUS Logic, a major US chip manufacturer, is the latest licensee of Arm Risc technology. Cirrus Logic is best known for chips addressing video graphics, modem and wireless communications.

Arm Ltd's managing director Robin Saxby commented: 'We are very excited about partnering Cirrus Logic. As a leading supplier of integrated circuits to the PC peripheral market, including graphics, wireless, controller and mass storage, Cirrus will be able to provide highly integrated solutions very quickly and cost-effectively to the markets.'

Mike Hackworth, president and CEO of Cirrus Logic said: 'For Cirrus Logic, the Arm processor core represents the very first general purpose computational building block to be integrated with our proprietary circuit designs. The Arm core is a key element in our commitment to work with Apple next-generation Newton requirements.'

Cirrus Logic joins GEC Plessey Semiconductors, VLSI Technology, Sharp and Texas Instruments as an Arm technology licensee.

• Arm chips are finding their way into more new products including PCMCIA credit card modems, sound synthesiser cards and smart cards. In France, where smart cards are now replacing ordinary mag-stripe bank and credit cards, smart card manufacturer Gem Plus is working with Arm Ltd to incorporate Arm processor core technology into cards which could potentially manufactured in their millions. Nat West has announced a smart card trial in the UK too.

Meanwhile, VLSI Technology has announced the Arm650, a microcontroller implementation of an embedded Arm6 core designed for laser printer applications.

New cards

DIGITAL Services has extended its range of ethernet cards with one for the A5000, a faster version of its existing card for the A3000. Also new to the range is a bridge card for fast data linking between different networks. All cards are now available with either cheapernet (10Base2) or twisted pair (10BaseT) connectors.

Digital also claims its cards are now the fastest available on the Acorn platform, with the A5000 card being developed with file-serving applications in mind and capable of data speeds over 1Mb/sec.

The bridge card can be used in place of software bridges between networks to improve performance and reliability.

It also enables up to four ethernet cards to be used in one computer for the first time. Prices are £139 for the A3000 and A5000 cards, and £169 for the Bridge card. Contact Digital Services on (0705) 210600.

Faster CD-Rom from Morley

IN response to increasing competition, notably from Cumana and now HCCS Morley Elec-tronics has upgraded the specification of its Revolution CD-Rom drive to 300Kbps transfer rate without raising the price of £299 + VAT.

There is also a Revolution package for the many Archimedes users who also have a PC compatible. This costs £379 + VAT and includes an external Revolution CD-Rom drive, PC interface card and an Archimedes podule.

The drive is not designed to be connected to both a PC and an Archimedes at the same time, but it is theoretically possible to use a switch box as long as the data cables don't exceed 1 metre. Morley Electronics can be contacted at 091-257 6355.

Sampler switch

Solent Computer Products Ltd has taken over the Oak Recorder II sound sampler from Oak Solutions.

Solent has been around in the Acorn world for some time; products like Bridge (on the BBC micro) and the Archimedes ABC Basic Compiler – both written by Paul Fellows – were originally Solent-developed products. So it's no surprise to find that Sharron Fellows runs SCP, while Paul has a full-time job at Colton Software.

Oak Recorder II is priced £39.95 + VAT with a £5 discount for education. SCP is on (0954) 789701.

Pocket promo

Acorn has extended its special promotion on the Pocket Book to the end of March. Normally priced at £212.72, the Pocket Book is currently available for £169.95. *Schedule* continues at £16.98 instead of £42.51.

Class Pack bundles, too, remain discounted. The Pocket Book Class Pack includes 11 Pocket Book computers, an A-Link and a mains adapter, and is priced £1699.50, and a Schedule Class Pack with 11 Schedules costs £169.79. All prices are ex VAT.

RF designers

Steve Hunt has contacted *Acorn User* about applications he has developed which will be of interest to RF design engineers. They include a filter designer, receiver noise figure/intercept point analysis tool, an inductance ready reckoner and a comprehensive Smith Chart design aid.

Steve can be reached at 21 Green Street, Milton Malsor, Northampton, NN7 3AT or on (0604) 858090 (after 7pm).

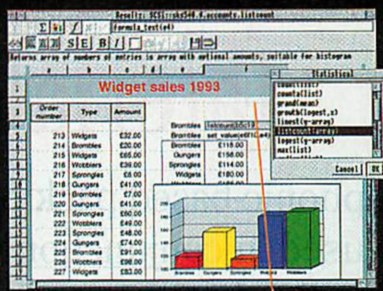
Textile printing

Quill Marketing has introduced a new range of Textile Transfer Paper products designed to enable computer-generated artwork to be printed permanently onto textiles. Contact Quill on (0603) 748002.

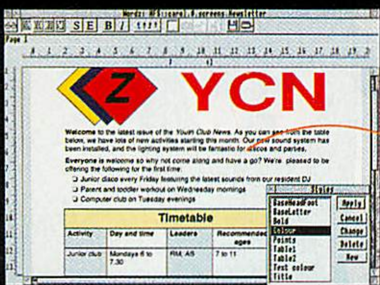
productivity and integration

Resultz is the power-packed spreadsheet that gets the answer first. Whether you're working with statistics, finance or arithmetic, Resultz and its unequalled range of functions can provide the answer easily and quickly. Boost your productivity for £99.

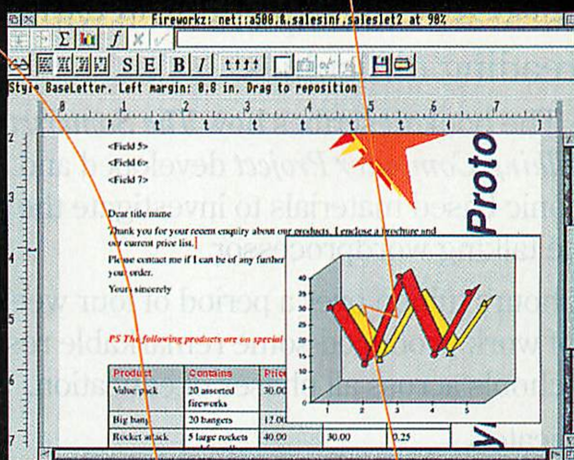
resultz



wordz™ 1993...4...



Fireworkz combines the power of Wordz and Resultz into a single, truly integrated program. Work on numbers, formulas, text and charts within a single document, using the same easy interface featured in all members of our program family. A complete working environment for only £149, or upgrade from PipeDream, 1st Word Plus, Impression, Easiwriter, Eureka, Advance or Schema for £99.



Wordz is the dedicated word processor, feature-packed but easy to use. Click on a button or drag an icon to design good-looking documents. Text and tables are easily styled, live on the page. At £79 it's the affordable option for documents with impact.

fireworkz ®© ™ 1993...4...

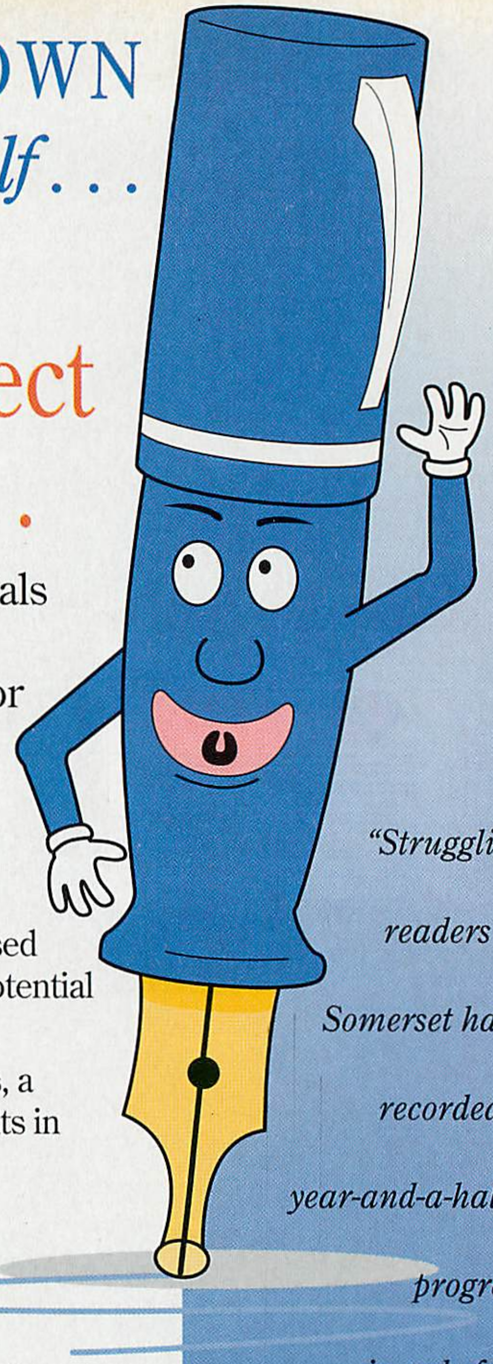
Colton Software is a leading name in RISC OS software. Our commitment to our users is unequalled. Educational users can benefit from competitively priced site licences; all users get our renowned free technical support. Prices are special offer prices, excluding VAT, and are valid until January 1994. Write or phone for free brochures and demonstration disc.

COLTON software

2 Signet Court, Swann's Road,
Cambridge CB5 8LA
Telephone 0223 311881
Fax 0223 312010
Email info@colton.co.uk

Following TALKING PENDOWN *the software that speaks for itself . . .*

The Somerset Talking Computer Project Learning Materials . . .



Up to 37 months increase in reading age in just 6 hours work

. . . A phonic-based pack of materials to be used in conjunction with *Talking Pendown* - a wordprocessor complemented with "Speech" software - to help children with reading difficulties.

The book describes how *The Somerset Talking Computer Project* developed and used phonic-based materials to investigate the potential of the talking wordprocessor.

In little more than six hours tuition over a period of four weeks, a structured programme of work produced some remarkable results in pupils from a variety of schools across all phases of education.

Initial piloting results indicate:

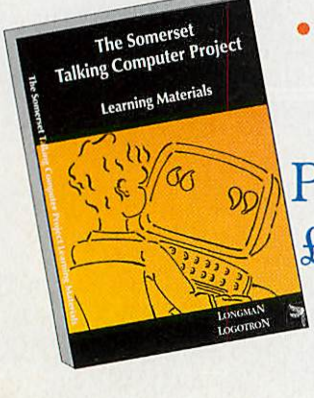
- an average increase in reading age of 8.3 months;
- best result achieved an increase of 37 months;
- an average short-term memory improvement of 16 months;
- recognised improvement in spelling;
- observed increases in concentration span and time spent on-task;
- enhanced self-esteem;
- subsequent transfer of skills to other curriculum areas.

The book includes:

- a résumé of the work undertaken in Somerset;
- the photocopiable phonic-based materials;
- advice about how to prepare, begin and proceed with the work;
- suggestions for monitoring progress;
- ideas for extending the work with pupils.

"Struggling readers in Somerset have recorded a year-and-a-half's progress in only four weeks as part of a new research project into the benefits of 'talking' computers"

Times Educational Supplement 19.2.93



Price: £29.00 (+ p&p £3.53)

Longman Logotron
124 Cambridge Science Park
Milton Road
Cambridge, CB4 4ZS

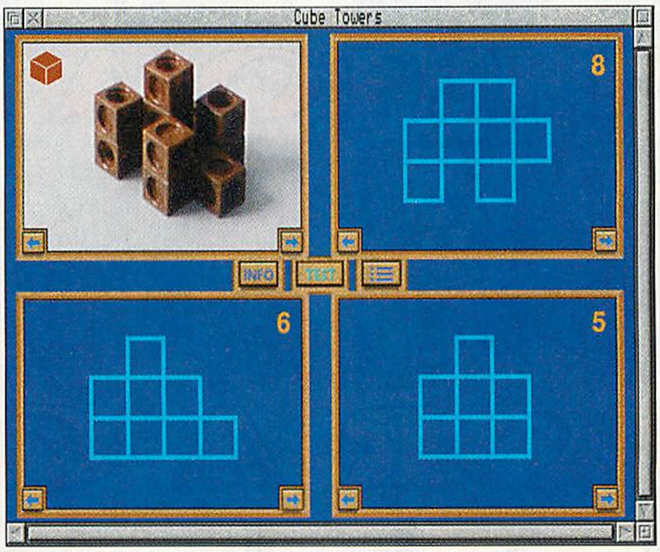
Tel: (0223) 425558
Fax: (0223) 425349

MATHS ON CD-ROM

CUMANA is now the sole distributor of the World of Number series of maths-made-fun multimedia CD-Roms for the Archimedes produced by New Media.

The CDs were developed in association with the National Curriculum Council and the Shell Centre for Mathematical Education at the University of Nottingham. Four CDs, each offering more than 20 hours of classroom activity, are available in the series priced £59 + VAT each. Teacher and pupil guides plus worksheet templates are recorded on each disc.

For more information, contact Cumana on (0483) 451371.



The World of Number, now distributed by Cumana

Golden Eagle from WildVision

A SPECIALLY priced bundle combining the Eagle M2 Multimedia card and the ColourCard Gold graphics accelerator has been announced by Computer Concepts' partner firm Wild Vision. This sub-£500 combination enables the Archimedes to display true colour, full-motion video at TV-like quality on the Risc OS desktop.

ColourCard Gold is an upgraded version of the original ColourCard graphics accelerator, and includes software to run a 16-bit-per-pixel desktop allowing more than 32,000 colours on screen at once. This means true colour pictures can now be realistically displayed in desktop applications.

Wild Vision describes the Eagle M2 as a new experience in Archimedes expansion hardware. It combines the functionality of a high quality (24-bit) video digitiser with real-time digital movie capture facilities, stereo sound sampling and playback, plus MIDI, all on one single-width podule.

The Eagle M2 and ColourCard Gold can work together to display live video on screen in true colour in a desktop window. Acorn Replay movies can also be created in real time using the Eidos ESCaPE compressor and played back in the new true colour modes. The combined package is priced £498, £50 off the combined price if bought separately.

Wild Vision is also offering existing Acorn Replay DIY card owners an upgrade path. Until 30 April, a rebate of £99 is being offered against the purchase price of the Eagle M2 for anyone trading in their old DIY card.

• Wild Vision has a vacancy for a Technical Support Manager. The vacancy has come about through a programme to revamp Wild Vision's technical support and after sales service, 'to make it second to none in the industry,' according to founder, Peter Wild.

BLUNDERBOX

•Apologies to John Rutter, whose Durham Canticle piece we printed minus all the 100-odd crotchet noteheads which should have been there. We would like to make it clear that neither the *Sibelius* package nor John Rutter was at fault: unfortunately the noteheads got lost in the conversion from *Draw* on the Arc to *Illustrator* on the Mac.

•Acorn has asked us to point out that its DDE Pascal package, mentioned in our round-up of programming languages, is not available from Acorn directly, but only through PD libraries.

•*Supergram II*, mentioned in the PD column, comes in two forms: *Standard* (£12) with an 80,000 word lexicon, and *Professional* (£34.95, minimum 2Mb) with a 130,000 word lexicon. These are available from William Tunstall-Pedoe, P O Box 395, Cambridge CB3 9PJ; only the demo is public domain.

•*Larger*, a demo of which appeared on the February disc, costs £10 including p&p (there is no VAT to pay) from Warm Silence Software on (0865) 54382: the price was omitted from the disc pages.

Looking good

Castle Technology is to bundle Computer Concepts' ColourCard Gold card with its 14in Samsung SyncMaster SVGA monitor (tested this month) along with a special modes module. The price is £419 plus delivery and VAT. For more details contact Castle Technology on (0728) 621222.

Sharp sound

There have been filter-bypass kits available for some time for the Arc to improve sound output; basically they enable you to bypass the in-built sound filterin the Arc to provide clearer sound output.

One such bypass has been available from Intonation, and now an Intonation customer, Lovell Fuller, has taken over the product. 'I purchased an Intonation sound upgrade of my own back in September and was so stunned by its excellence, I bought the business,' he says. Intonation is now at 2 Back Mount Joy, Durham City, DH1 3AZ, tel: (091) 384 5217.

Acorn World video

University of London student Thomas Daly (e-mail: tdaly@uk.ac.ucl.eleceng) has produced an interesting video report on the Acorn World show from last year. The video is well worth a viewing – some points he picked up certainly passed us by at the show.

Featured in the video is an interview with Acorn's show organiser, Kevin Coleman, and video evidence of managing director Sam Wauchope's dare-devil abseiling feat at the show.

DTP board

Smart DTP has launched the originally-titled *Electronic Circuit Development* package. The program is primarily designed for GCSE Design Technology students, but at just £14.95 is an attractively price alternative to more sophisticated electronics CAD software. Contact Smart DTP on (0332) 842803.

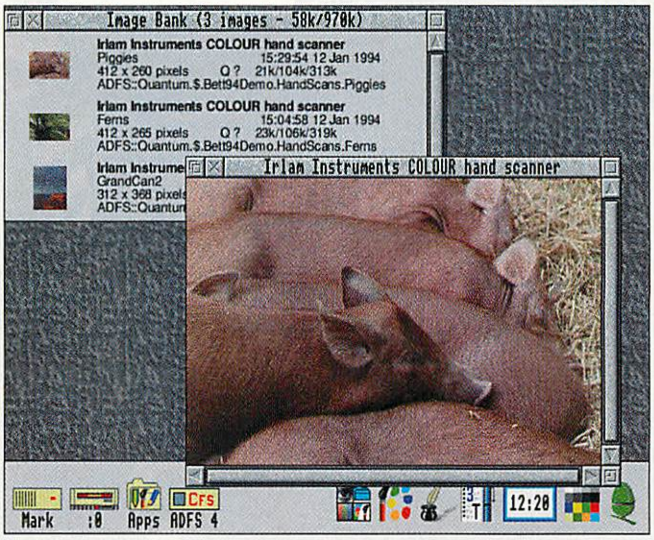

PICK YOUR PLAYERS
ZOOM INTO A ZONE
AZTEC
OCEAN
MEDIEVAL
FUTURISTIC
GO FOR A GAME
PHYSICAL
SKILL
MENTAL
MYSTERY
FACE THE FINAL CHALLENGE
' The Crystal Maze is fantastic. The graphics and sound are stunning, the puzzles and games very playable and challenging.....'
Risc User, December 1993
Gold not silver
' The Crystal Maze is a must for everyone from lovers of mind bending puzzles to joystick-frenzy enthusiasts '
Acorn Computing October 1993
CRYSTAL
THE CRYSTAL MAZE
The Crystal Maze is available exclusively for Acorn 32 bit computers
The Crystal Maze is a Chatsworth Television production for Channel 4 based on ideas by Jacques Antoine © 1990
SHERSTON
£39.95 (inc VAT) from
Sherston Software
Swan Barton, Sherston,
Malmesbury,
Wiltshire SN16 OLH
Tel 0666 840433
Fax 0666 840048
Please send me ___ copy of The Crystal Maze® at £39.95 inc VAT
Name
Address
Post Code
Visa/Access:
Exp. Date:
Signed

COST-EFFECTIVE COLOUR SCANNING

IRLAM Instruments launched two new products at BETT '94. Its new colour hand-scanner is the first of its kind available for the Acorn and has been developed from Logitech's lastest colour scanner.

In addition to the standard 256 grey levels the new device can scan in 24-bit (16.7million) colour at resolutions from 100 to 400dpi. It has been priced low enough to present a serious challenge to the monochrome handhelds like Watford Electronics' Scan256 and Computer Concepts' Scanlight.

Judging by the sample scans I saw at BETT, there seems to be very little difference in scanned image quality between the Logitech handscanner and superb Epson GT-8000 A4 flatbed. The limited size and resolution of the handscanner rules it out for professional use, but at £359 + VAT it will enable much lower-end users to input true colour imagery. For anything larger than post-card sized images, Irlam is developing a stitching utility that will automatically crop and tile separate areas of a large composition.



Scans from Irlam's colour handscanner, compressed in ImageBank

ImageBank is a JPEG viewer and compression system with a very well-finished and friendly front end (see the demo on this month's cover disc. JPEG is a compression technique well utilised on Unix, Mac and PC platforms, and is able to crush images down to incredibly small sizes, though at the cost of image quality.

Typically, an 800K disc with *ImageBank* included can hold 1400K of bimap imagery using JPEG. At 15:1 compression, JPEG files are at 75% original quality, but this deterioration is only visible under high magnification. Files can be exported as sprites, Deep sprites, Clear files and as JPEG images.

The full application costs £25 + VAT, and future developments include *Draw* file storage and dithering for images rendered in true colour modes, for photorealistic results – practically PhotoCD on a floppy. For more information call Irlam Instruments on (0895) 811401.

New bitmap painter

COLOSSAL is a bitmap painting application designed to enable budding artists to create eye-catching imagery with very little effort.

What the program lacks in image manipulation facilities and flexibility it certainly makes up for in the massive number of standard tools, hence its name. No less than fifty icons reside in the multi-column tool bar which stretches down the side of the entire mode 13 screen.

An abundance of exotic image generation facilities have been implemented, like brushes that would normally take much longer to create than a click of a button, specially for younger users.

As with a lot of graphics packages, the program compromises desktop compliance for increased speed – none of the effects are sluggish, but as with a number of 'off the desktop' painting applications *Colossal* is marred by its present limitation to mode 13: as with CIS' *QPaint*, this is a shame.

Colossal is available from Crisis Software: more details as they become available.

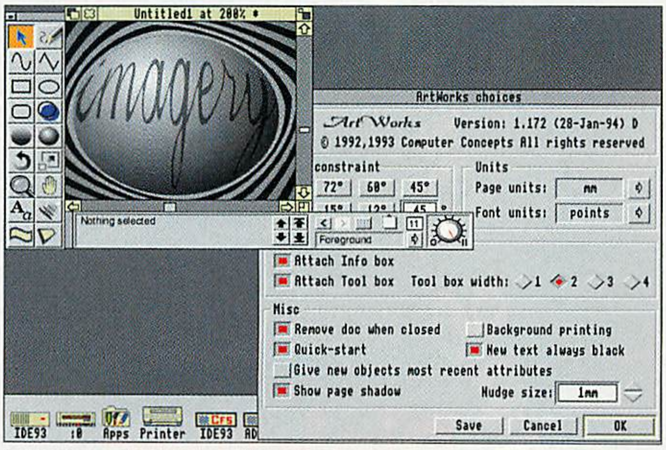
ArtWorks round-up

A PRE-RELEASE form of the latest evolution of *ArtWorks* is being beta-tested at time of writing. Computer Concepts' dedication to quality has required that version 1.5, the most radically revised version to date, has got to be thoroughly bug checked before final release.

Its main features include a Deep sprite and TIFF loader, and number of new preference options, which include 'new text always black', 'give new objects most recent attributes', and 'Quick-start'.

The last of these reduces the previously slow loading of *ArtWorks* by a significant thirty percent, and is achieved by bundling all the separate modules into one for faster loading into memory. For those who need to fine-tune their four colour separations and correct the ink balance in full colour printing, the new print colour editing tables will be another useful extra in version 1.5.

As far as an official release date goes, nothing has yet been officially announced, though the copy I am testing doesn't have a bug in sight so it is likely to be available in a matter of weeks rather than months. *ArtWorks* costs £169 + VAT, and is available from Computer Concepts on (0442) 63933.



ArtWorks version 1.5 should be with us soon

● Dabs Press has published a guide to *ArtWorks* called, *ArtWorks Made Easy*. Written by Roger Amos this 269-page book which caters for all users, even beginners, is a comprehensive catalogue of what *ArtWorks* is and how to get the most out of it.

For more details, contact Dabs Press on 061-773 8632.

Contact the Graphics Page by writing to Jack Kreindler, at The Graphics Page, *Acorn User*, Europress Enterprise, Europa House, Adlington Park, Macclesfield SK10 4NP.



V.Fast Class from Hayes

HAYES Microcomputer Products Inc. has dismissed the V32 turbo modem technology as 'beyond its limits' and gone for a proprietary interim V.34-ish standard, developed jointly with Rockwell, which they call V.Fast Class™ or V.FC™.

The result is their new Hayes Optima 288 V.FC + FAX modem. This is an all-bells-and-whistles beast that will handle all speeds from 300-28,800-bit/s, with V42 and MNP2-5 error correction, V42bis and MNP 5 data compression, and 14,400-bit/s fax capability.

Lots of features such as automatic fall-back and step-up, auto feature negotiation and synchronous operation are included.

After receiving BABT approval, the modem is expected to ship in the first quarter of 1994 in the UK. No pricing was available at the time of writing, but the US version sells for $579.

Interestingly, in the US Hayes operates a BBS Sysop discount scheme, and Sysops already using Hayes products there have been involved with Beta-testing the new V.FC technology.

The US Sysop discount price for the Optima 288 V.FC is only $288, and it's expected that a discount scheme for UK Sysops will be announced when the modem is released here.

At the recent TMA show in Brighton, Hayes was offering company users a pair of the Optima 288 modems and two ESP Accelerator cards (high speed PC serial port cards) for just £599 ex.VAT! The company is obviously pushing the product hard to try for first place in the race for V.Fast.



The Hayes 288 V.FC + FAX modem

E-mail for Junior Schools

JUNIOR Chat is a low-cost way of allowing children in Key Stage 2, years three to six, to communicate with other schools using computers and telephone lines.

Junior Chat is part of a group of electronic message areas on SchoolNet, set up by Paul Welbank, IT teacher at Eaton School in Norwich, to provide an inexpensive means of inter-school communications via computer and modem.

Many primary schools already have a modem for communicating with the Local Management of Schools funding scheme. At the present time the system is only available by phoning StarNet bulletin board in Norwich, the SchoolNet host.

It could be expanded to be available to most schools for just a local call to any bulletin board hooked into FidoNet, the worldwide non-commercial communications network.

The software to run Junior Chat is free, and available for both Archimedes and PC-compatible computers.

An article in MicroScope, the magazine published by Microcomputers and Primary Education (MAPE) for primary schools, describes Junior Chat in use by Doug Weller, a Y6 teacher in Solihull at Langley Junior and Infant School, and Stephen Booth, a Y5 teacher at Codnor Junior School, Derbyshire.

Their children are now exchanging messages and photos, and even sent their Christmas cards all down the telephone line! All the work is prepared offline and then despatched at off-peak times so as to keep telephone costs to a minimum. Stephen sends and receives the children's messages using his school computer system, dialling into SchoolNet, while Doug takes home the message files from his class and sends them off using his A4000 and USR Sportster modem.

Doug and Stephen would like to encourage other schools to take part, and both welcome enquiries by phone. Doug Weller lives in Solihull and is on 021-708 1254 and Stephen Booth is in Castle Donington, Derby on (0332) 853784.

Dear Bill

AS part of President Clinton's drive to improve his administration's accessibility to US citizens, a Presidential e-mail system has been set up at the White House.

Anyone can now actually send e-mail to 'president@whitehouse.gov' and get an initial automated response from the Presidential e-mail system director, Stephen Horn.

Horn points out that the volume of mail prevents the President from personally reviewing each message, but each one is read by White House staff, and the President is shown a weekly sample of the mail. The system is also intended to be used by interested parties to receive White House publications.

To receive instructions for obtaining documents, enquirers are invited to mail 'publications@whitehouse.gov' with a message simply saying 'Send Info' (without quotes). The instructions will show how to search for and receive selected publications, which are returned a few minutes after the mail-request has been received.

Future developments are hinted at in Phase Three of the project – to be able to respond electronically to incoming messages.

In brief

Phone day

Although Phone Day is just over twelve months away, when all STD codes will gain an extra '1' between the '0' and the rest of the code on 16th April 1995, there are significant changes starting this year.

Because BT plans to roll-over the change in parallel with the current system, from 16th June the new codes will begin to work in parallel with the old.

This means that organisations with PABX systems that bar calls to STD areas outside London will have to ensure that they refuse the old '01' London prefix.

Also changing on Phone Day are some city STD codes and the international access code, which switches from '010' to '00'.

Fast modems

The V32terbo 21k 6bps USR Dual Standard Courier modem is now available (contact Hawkastle on (0784) 449991 for amazing prices – £299 to Sysops), with the promise of a V.34 (V.FAST) upgrade when the standard is finally agreed in June.

Another company claiming to have a V.34 modem running at 28.8k-bits/s ready for sale, at just under £1000, is General DataComm.

GDC will offer a free software upgrade when the standard is ratified. Contact them on (0734) 774868.

New ARCterm7

Version 1.46 of *ARCterm7*, the popular terminal software for Acorn 32-bit machines, is now available from The Serial Port in Somerset.

This version re-implements the Network modem server code now using block drivers, and features 3D windows and icons in line with Risc OS 3 style, as well as other improvements.

This will probably be the last upgrade that retains compatibility with Risc OS 2, which is as good a reason as any to upgrade to Risc OS 3. Existing users can upgrade by returning their original discs. The Serial Port address is Burcott Manor, Wells, Somerset and they can be contacted on (0749) 670058.

You can contact me by writing to: David Dade, Acorn User, Europress Enterprise Ltd, Europa House, Adlington Park, Macclesfield, SK10 4NP or by e-mail to: DaviD@arcade.demon.co.uk, or by modem on Arcade BBS, User #2, 081-654 2212 or 081-655 4412.

...ay present
...hance to play
...h top pianist
...derman.
...r-old musician
...udition to star
...aestro when he
... tour at the
...Theatre next



...uet, two days
...mes a teenager,
...ringboard to his
... as famous as
...s inspired him.
...be professional
...d travel the
...nathan from his
...me home. "I
...n opportunity
...d."
... has his grade
... and is also an
...rench horn and
...r.
...piano teacher
... not teach him
..., Richard
...ght m...

Last week the Express reported on the complaints of

management of Edgeley branch was not aware of

manager on December 10 to make the views of the

"The cage in which aluminium cans are stored was

SCHOOL CHILDREN PROVE THAT NEW BYPASS WILL DAMAGE THE LOCAL ENVIRONMENT

EXCLUSIVE

BY MATTHEW DAVIES

USING an innovative new program on their classroom computer children from St. Chad's School have shown town planners that a proposed new bypass would have a detrimental effect on their local environment.

The children surveyed the local area and fed details into their Topographer program, which allows them to look at the relevant area in 3D. They then added the new road along its proposed route and it became obvious that the road would not only affect an area renowned for its badger population but would also distract children in the classroom as they would be able to see traffic moving along the new road.

The children even went as far as to propose a new route for the road to the town planners. The proposed route would have a negligible impact on the area but still provide the much needed relief to existing roads.



A SERIES of sweeping proposals which would abolish free parking in district shopping centres, change some bin collections, increase lettings charges and scale down mileage claims by some council officers, have been announced by Labour.

In the first indication of their intentions si... seizing power jointly with the Conservati... party has produced a h... 1,000 ... servi...

● REDUCING mainten...

Other econ... departmental b... cutting scho... fees.

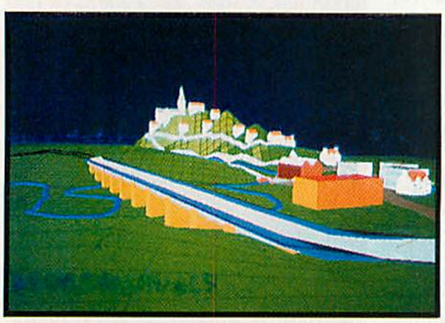
Th...

Topographer is a major application for the Geography curriculum which allows children (and teachers) to have lots of fun whilst learning all about maps, contour lines, valleys, rivers etc. In fact *Topographer* covers virtually all items found on a map.

The real break through with *Topographer* is its 3D section which allows you to convert a 2D map into a 3D model on screen. Imagine turning a set of flat contour lines on a 2D map into a 3D model which clearly shows the hill — no more cardboard cut out models or papier mache! You define where you look from, and what you look at.



Topographer also covers aspects of the IT and maths curriculum with its modelling capabilities. Just stop for a minute and think of the projects that you could do with *Topographer*. You could make a map of the local area with churches, pubs, woods etc. and then view it from various places. If there is a bypass proposed you could add it in to the existing landscape and see where it is visible from and what impact it is likely to have on the community. I'm sure you can think of a hundred and one topics.



◆ Fully RISC OS 2 & 3 Compliant and 1 megabyte friendly ◆ Suitable for all ages from 6 onwards ◆ Easy and quick entry of all symbols (over 100) ◆ Wooded areas which translate into impressive 3D landscapes ◆ Definable map size and scale which can be linked to the national grid references ◆ Powerful 3D mode giving a true representation of the landscape ◆ Stunning 3D models which can be saved as a sprite file for use with other applications.

£79.95 inc. VAT

All specifications subject to alteration without notice

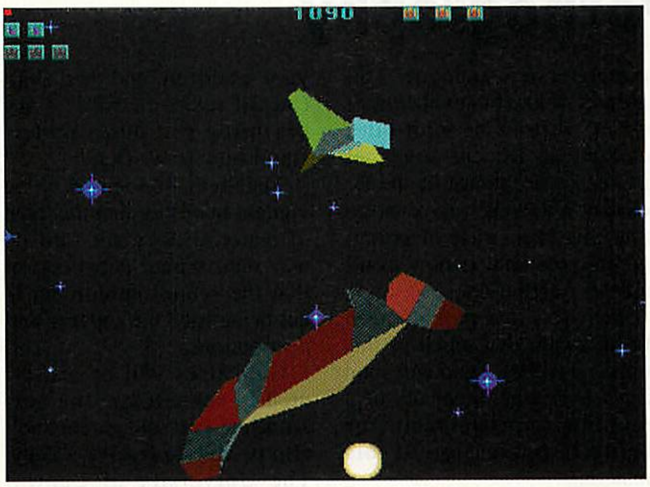
AVAILABLE • APRIL 1ST 1993

CLARES

We accept Access and Visa.

98 Middlewich Road, Rudheath, Northwich, CHESHIRE CW9 7DA. Telephone: 0606 48511 Fax No: 0606 48512

Magnetoids demo version



TO tie in with this month's graphics theme, I'll be looking at a range of graphically intensive games and demos recently released into the PD scene, kicking off with an excellent contribution from German vector graphics expert Frank Fohl.

MoidsDemo is an early demo version of a commercial production, *Magnetoids*, which Frank will release later this year.

At first glance the game plot is pretty unoriginal – it's just another version of asteroids – but when you load and start the game, your ship rolls onto the screen in glorious three dimensions of filled polygons.

Working much the same way as its 2D origins, *MoidsDemo* begins with a few large chunks of space rock which split up into a greater number of smaller shards when hit by shots from your laser cannon.

But in this version the asteroids are attracted to your ship, and home in with alarming speed and accuracy. On top of all the flying granite, you also have to face quite a number of enemy spacecraft which are pretty deadly with the old laser gun. When hit by enemy fire your ship is thrown into a spin.

An occasional loading bug, which leaves you without a screen display, seems to occur on some machines, but loading from mode 15 seems to prevent this. Everything is rendered at a competent frame rate in filled vector graphics, and having everything light sourced by the local sun is very impressive.

A special colour mixing routine helps get round the limitations of the 256-colour palette, and some loud sound effects added to the atmosphere. *MoidsDemo* is available from the Datastream PD library.

Rainbow Demo



ANYONE interested in the many programs written by Jan Vibe and Jan Vlietinck for *Acorn User* will want to get hold of the graphics collection discs available from Third Millenium.

Jean Van Mourik has put together a range of mini-graphics demos by Jan Vibe, Jan Vlietinck and (mainly) himself. Although not strictly public domain or shareware, Jean is offering the discs at real budget prices, and due to the quality of the effects I felt a review in this column was warranted

The Rainbow demo disc, offered for review, is one of 13 collections with everything from Basic demos to graphics utilities and modelling packages, and features over 125 animations and effects.

The style is similar to the two Jans' *INFO programs, with the emphasis on fractals and cellular automata. Special routines check for available multisync modes, to allow the demos to run in hi-res if possible.

More information on the programs available can be obtained from: Third Millenium Computer Graphics Fractal and Mandala Art, 4 Pantllyn Llandybie, Ammanford, Dyfed, SA18 3JT.

Palette

MANY desktop mode-control utilities have been written in the past, but DoggySoft's effort seems to be the most useful. Rather than filling up the icon bar with another utility, *Palette* replaces the standard Risc OS application with a similarly styled but updated interface.

Modes can be accessed via the usual Mode menu, but the standard range to click on has been increased and more can be typed in.

Other features include a fast mode finder, which locates the required mode to your colour and resolution requirements, and the incredibly useful 'randomize' function, guaranteed to produce a major colour clash on your desktop!

Many other facilties, too extensive to mention here, are included, and added functions like the screen saver can be configured via the options window.

Palette is shareware, and a registered copy can be obtained for £5 from: DoggySoft, Furzefield House, Furzefield Road, Beaconsfield, Bucks, HP9 1PQ.

In brief

Scene News

Hot from the keyboard of new Arm coders Adept comes a graphics demo entitled *CVision*.

It's a demonstration of digitised graphics, featuring nine pics and a little scrollerans is available from Datastream.

Also check out the amazing work of French coder Armoric featured on this month's cover disc. Armoric has put together a little preview of some of his light sourcing and Gourard shading routines which will probably be used in forthcoming Arms Tech productions.

PD Issue

The June issue of *Acorn User* will be an in-depth look at the world of Public Domain. Featuring full reviews of the best PD and shareware software available, we also want to focus on the personal side and represent the views of authors and users. If you'd like to contribute your views, software or cover disc material, please get in touch at the address below.

PD Library: Five Star Marketing

Although a relatively new library, Five Star Marketing offers a good range of software.

Norman King, the proprietor, is still looking to expand Five Star further. A special section focusing on the education market is just being set up, with the possibilty of launching some budgetware titles in the same area.

Discs are £1.40 each but discounts are available for Five Star members and large quantity orders. The contact address is 4 Shepherds Walk, Bushey, Herts WD2 1LZ.

Contacting me

I'm interested in featuring as many new PD and shareware programs on this page as possible, and although I'm in contact with many software authors and PD libraries, there's still a lot more of you out there. So if you want a mention for your PD library in the special feature, or you just want to get your software reviewed, write to me Paul Wheatley at the new *Acorn User* address. *Europress Enterprise, Europa House, Adlington Park, Macclesfield SK10 4NP.*

Computer Pornography

I STRUGGLED for a long time deciding whether or not to include this article because I think that, in some cases, adding to the hype can worsen the problem.

I don't like the fact that many newsagents stock soft-porn magazines on the shelf above computer magazines, but what I like less is that hard core computer pornography can be easily purchased either on disc, or downloaded into computers both at home and school for chrildren to see.

As Acorn computers are not as widespread as PCs, users do not have access to as large a pornographic catalogue. This means that the problem is not as serious as with other computers. Recent advances in the performance of the PC emulator, however, have meant that this large base of pornographic material is now available to Acorn users.

Teachers and parents need to be aware that much of this material is illegal and will soon carry a maximum penalty of 3 months imprisonment for being in possession of this material.

Parents need to start being more responsible for their actions. It's no longer appropriate to buy a computer for your children, and then abdicate all responsibility by claiming you don't understand how it works.

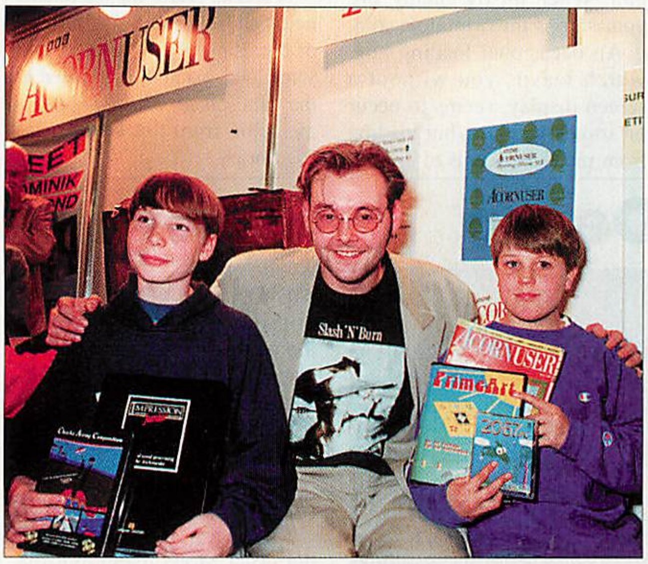
Teachers, too, need to be vigilant to ensure that this type of material does not find its way onto school networks, or that the school equipment is not being used for copying and distribution.

Guidelines will be distributed to schools by the new academic year and parents will also be able to receive a copy. The University of Central Lancashire is researching the problem and you can contact Vicki Merchant there on (0772) 892512.

Acorn User Schools DTP Competition

THE closing date of March 14th is nearing, so you should be sending in your entry very soon. As one of the judges, I will be looking for evidence of a wide variety of Information Technology skills.

The competition is for students, either individually or in groups, to produce an eight page A5 booklet containing original text and an original graphic. I'm looking forward to seeing the results and I will report back next month.



Last year's winners of the schools competition

Acorn/Tesco Hiccough?

THOSE who took part in last year's promotion should have received all of their order. If like me, you chose CD-Roms, then you may have been disappointed. Two of the eight CDs offered have hit production problems.

Those ordering Anglia Television's Human Biology CD *Understanding the Body* will have had a letter from Media Development Executive Peter Stibbons apologising for the delay. (In fact it did arrive just after Christmas.)

Those who ordered *Dinosaurs* also received a letter from CD Technology saying that the CD will not now be produced. The company has offered customers any two of three alternative CD titles – *Image Warehouse*, *Creepy Crawlies* and *Grooves*.

If you don't already own these titles, this seems a generous offer. Unfortunately, as these CDs also appeared in the Tesco/Acorn catalogue, I (and presumably many others) ordered these and feel that the duplication of titles is not an alternative.

Having contacted Acorn (twice) I can only conclude that they have all but washed their hands of the 1993 scheme. Clearly the fault lies with the software houses who appear to have advertised products that were not ready for marketing, and at worst didn't actually exist. It now transpires that in one case, the product will never exist.

This sort of thing occasionally happens when ordering products from department capitation or from one of the other funds available to many schools.

Goods are ordered but don't actually arrive because they're not ready for dispatch. If the problem isn't spotted in time it may be too late to re-order and money could be lost.

Welcome to me...

I seem to have landed myself with a second job! My 'real' job is a teacher – in fact I'm Head of Information Technology at a secondary school in North London.

As a classroom teacher, I will be able to draw on my teaching experience and that of colleagues (both within my school and beyond) and will be offering a diet of news and advice specifically for parents and teachers regarding Information Technology, the National Curriculum and how it is delivered.

No apologies if this sounds like an agony column: that's probably what's needed. Major items being prepared for future issues include an in-depth look at networking, and control in the classroom.

I'll regularly focus on how IT can be used to deliver topics/subjects throughout the key stages – History at Key Stage 2 being the first. I would welcome suggestions for possible future topics from teachers, parents and from software houses.

In the January issue, *Acorn User* started a series showing how Information Technology can be delivered. The National Curriculum is now going through yet more change, and for teachers of Technology and Information Technology we can look forward to some considerable 'slimming-down' of the subject content which will have significant implications for assessment and subsequent reporting.

Because Information Technology is now being increasingly offered as a cross-curricular subject, this provides a special set of difficulties which the IT co-ordinator needs to address. Parents also need to be aware of these changes and how they will affect their children's education.

All too often changes occur, teachers get on with the task of implementing the changes and understandably, but regrettably, the parents are not fully informed.

Help me to help you. If you want to contact me, then write to the Education Page at the usual editorial address.

Geoff Preston

LOWEST EVER PRICES • • ACORN'S LARGEST DEDICATED DEALER

MARCH 1994

The Archimedes Specialists

BEEBUG

Trying harder to please you!

Commitment To Acorn

Beebug are one of Acorn's largest dealers and are an Acorn Computers Education Dealer, Service Centre and Network Dealer. Beebug have been in the Acorn marketplace for over 11 years, and specialise exclusively in everything Acorn.

Fast Service

Wherever possible, **all orders received by 1pm will be despatched the same day.** All new items are supplied with at least 12 months warranty.

Free Technical Support

We have staff dedicated to providing technical help and advice to customers, which means continued support before AND after your purchase from us. A direct help line number is given to customers.

Comprehensive Stock Lines

Only part of our wide range of products for Acorn are shown here. Please telephone for anything that you need, but cannot see here.

Competitive Prices

You will find our prices VERY competitive. If you find something cheaper elsewhere, tell us and we will try to do better.Prices are subject to change without notification.

Visit our Showroom

Beebug is a large reliable company, not a faceless box shifter, so please feel welcome to visit our large, well-equipped showroom in St Albans to try the latest products. Showroom hours are Monday to Saturday 9am to 6pm.

Easy Ordering

Simply phone **0727 840305** (Direct Ordering Line) 9am to 5pm Monday to Friday (Answering Machine out of hours) We accept Access/Visa/Connect/Switch. Written or Official Orders are welcome. We will allocate you a customer number, making future orders even simpler.

Carriage

Carriage charges are shown by the letter after the stock code. When ordering several items use the highest carriage code, plus half of each subsequent code (subject to a UK maximum of £13). Codes a - £0.85, b - £1.70, c - £2.70, d - £3.20, e - £5.50, g - £8.00 (courier). Air mail costs will be charged at cost for overseas customers.

VAT

Please add carriage and then VAT at 17.5% to your order. This also applies to European (unless you quote your VAT number), and BFPO customers. Zero VAT items are marked with *.

BEEBUG, 117 Hatfield Road, St. Albans, Herts AL1 4JS
Tel 0727 840303 • Fax 0727 860263
DIRECT SALES ORDERING LINE
• 0727 840305 •

A3010

The A3010 is the entry level 32 bit computer. Use it with TV or a monitor.
It includes:

- RISC OS 3.1
- 1Mb memory
- 1.6Mb floppy drive
- Mouse
- Expandable to 4Mb

Supplied with The Action Pack, including:

- Zool Game
- Startwrite Word Processor
- Audio Training Tape

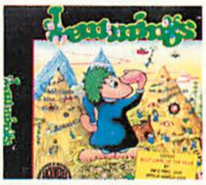
Only £339

Options
Memory to 2Mb £38.29 or 4Mb£159.
AKF30 Colour Monitor £180
Multi-scan monitor £195
20 Mb Hard Drive £199

A3010 Learning Curve
A3010 computer with 2Mb memory, colour monitor and the Learning Curve Pack.

Only £629

SPECIAL OFFER!
2 Free Games Lemmings & Chuck Rock worth £35





A3020

Features:

- RISC OS 3.1
- 2Mb memory
- 1.6Mb floppy drive
- Mouse
- Expandable to 4Mb
- Colour monitor

Only £649

Options
60Mb Hard Drive £125
Multi-scan Monitor £42
AKF50 Hi Res Monitor £105
Memory to 4Mb £99
(Not available with Learning Curve or Home Office Packs)



SPECIAL OFFER!
2 Free Games Lemmings & Chuck Rock worth £35

A4000

The A4000 is the mid-range 32 bit computer.
It includes:

- RISC OS 3.1
- 2Mb memory
- 1.6Mb floppy drive
- Colour monitor
- Mouse
- Expandable to 4Mb
- 80Mb hard drive

Only £849

Options
Multi-scan monitor £42.
AKF50 Hi Res Monitor £105.
Memory to 4Mb £99

Alternative to Special Offer
You may purchase The Home Office for £35



SPECIAL OFFER!
Free Learning Curve worth £42

A5000

Top of the range Acorn computer.
It includes:

- RISC OS 3.1
- 2Mb memory
- Mouse
- 80Mb hard drive
- ARM 3 33Mhz processor
- Expandable to 8Mb
- 1.6Mb floppy drive
- Multi-scan colour monitor

Only £1275

Options
A5000 with 4Mb memory and 162Mb hard drive £1445.
A5000 with 4Mb memory and RISC Dev. 260Mb or 450Mb hard drive £1570 / £1790.
Memory upgrade from 4Mb to 8Mb £349.
AKF50 Hi Res Monitor £63.

Alternative to Special Offer
Choice of FREE Learning Curve or Home Office for £25



SPECIAL OFFER!
Free Ovation DTP worth £99



A4 PORTABLE

The A4 system is a similar specification to the A5000 but in a portable format. In its base form it is supplied with 2Mb RAM and no hard drive.

Only £1399

Options
A4 with 4Mb memory and 60Mb hard drive £1675
A4 with 4Mb RAM and RISC Dev. 120Mb or 210Mb hard drive £1807 / £1917.



SPECIAL OFFER!
Spare A4 Battery Pack FREE Save over £50

SPECIAL OFFER A5000

ONLY A FEW LEFT
2Mb RAM, 80 MB Hard Drive, ARM 3 25 MHz processor, Learning Curve.

Only £850 (without monitor)

Options for monitors, RAM Upgrades and Additional Hard Drives are available at special prices.
Please phone for details.



EDUCATION - PHONE FOR SPECIAL PRICES

BEEBUG . . . 0727 840303 . . . Telesales Hotline 0727 840305. . . BEEBUG . . . 0727 840303 . . . Telesales Hotline 0727 840305. . . BEEBUG

BEEBUG . . . 0727 840303 . . . Telesales Hotline 0727 840305. . . BEEBUG . . . 0727 840303 . . .

BOOKS/MANUALS

5478b	!Help	Sherston	7.95*
5479b	!Help - Draw	Sherston	15.95*
5481b	!Help 3	Sherston	9.95*
1218b	1st Steps Prog RISC Comp	Sigma	14.95*
1207c	30 Hour BASIC	BBC/NEC	15.95*
1265c	A3010/3020 Tech Ref Man.	Acorn	29.95*
5856b	A4 Portable Handbook	Acorn	7.50*
5857c	A4 Technical Ref Manual	Acorn	65.00*
5855b	A4 Welcome Guide	Acorn	10.00*
1252c	A5000 Tech Ref Manual	Acorn	65.00*
1238c	Acorn Educ Directory	Acorn	4.95*
0915a	Arch Ass Lang Prog Disc	Dabs P	7.21
1211b	Arch Assembly Language	Dabs P	14.95*
1262b	Arch Game Makers Manual	Sigma	14.95*
1243b	Arch Oper. Syst (Book)	Dabs P	14.95*
1219b	Artworks Made Easy	Dabs P	14.95*
1228b	Assembler 2 User Guide	Acorn	25.00*
0906a	Basic Wimp Prog Disc	Dabs P	2.00*
1222b	Basic Wimp Prog on Acorn	Dabs P	14.95*
1244c	BBC Basic VI Guide - Arc	Acorn	19.95*
1261b	Budget DTP on the Arch	Dabs P	12.95*
1212c	C: A Dabs Guide 3rd Ed.	Dabs P	16.95*
1247b	Control on the Arch	HCCS	9.95*
1230b	Desktop Dev Env User Gde	Acorn	25.00*
1260b	DTP on the Arch Book	Sigma	14.95*
1214b	DTP Seeds	4Mation	8.45*
BKO2b	File Handling (Book)	RISC Dev	9.95*
BKO3a	File Handling Arc Disc	RISC Dev	4.04
1249c	First Impressions-Manual	Word Proc	29.95*
1269b	Good Impression Manual	Word Proc	26.95*
1255b	Graphics on the ARM Book	Dabs P	14.95*
1237b	Impression Guide	Dabs P	14.95*
1248b	Mastering 1st Word +	Dabs P	13.95*
1206e	Prog Ref Manual RISC OS3	Acorn	99.00*
1217c	RISC Machine Family Manl	Prentice	32.10*
1246b	RISC OS 3 First Steps	Dabs P	14.95*
1216b	Tech Pubs Style Guide	Acorn	10.00*
BK13a	WIMP Prog for All Disc	RISC Dev	4.21
BK12b	WIMP Programming for All	RISC Dev	12.95*

CD ROM DRIVES

5866g	Family Fun/Educ Pack 1	Cumana	412.00
5867g	Family Fun/Educ Pack 2	Cumana	499.00
5868g	Family Fun/Educ Pack 3	Cumana	593.00
5869g	Family Fun/Educ Pack 4	Cumana	679.00
5862g	Multimedia 16bit SCSI	Acorn	599.00
5861g	Multimedia 8bit SCSI	Acorn	599.00
5865g	Quad Speed CD ROM Drive	CC	975.00
5864g	World of CD 400/540/5000	Cumana	637.44
5863g	World of CD A3000/3010+	Cumana	637.44

COMPUTER UPGRADES/EXPANSION

0133c	A3000 1Mb RAM	RISC Dev	49.00
0130c	A3000 1Mb RAM (Ugdable)	RISC Dev	59.00
0131e	A3000 4Mb RAM	RISC Dev	159.00
0228e	A3000 Podule Expander	Wild Vis	159.85
0277b	A3000 Serial Chips	Acorn	17.00
4610e	A3000/4000 User/Anal.	RISC Dev	44.95
4611e	A3000/4000 User/Anlg/Ec	RISC Dev	79.95
0144c	A3010 1Mb RAM	RISC Dev	38.29
0146e	A3010 4Mbyte RAM	RISC Dev	159.00
0145c	A3020/A4000/A4 2Mb RAM	RISC Dev	105.00
0125e	A310 4Mb RAM	RISC Dev	269.00
0768c	A310 4way B'Plane + Fan	Ifel	52.00
5850d	A4 2Mb RAM for FD System	Acorn	105.00
0278c	A400/1 Series 1Mb RAM	RISC Dev	42.00
0141e	A410/1 8Mb RAM Card	RISC Dev	419.00
0142e	A420/1 8Mb RAM Card	RISC Dev	399.00
0143e	A440 & A440/1 8Mb RAM	RISC Dev	369.00
0147e	A5000 2->8Mbyte RAM	RISC Dev	399.00
0124c	A5000 2Mb RAM	RISC Dev	99.00
0148e	A5000 4->8Mbyte RAM	RISC Dev	349.00
4613e	A5000 User Analg & Eco	RISC Dev	79.95
4612e	A5000 User/Anlg Port	RISC Dev	44.95
0225g	A540 4Mb RAM	Acorn	253.16
0134e	ARM 3 Upgrade	RISC Dev	99.00
0775g	ColourCard Gold	Wild Vis	225.00
0778g	ColourCard Gold - A3000	Wild Vis	225.00
0784c	Disc Buffer 400/1 & 540	RISC Dev	34.95
0135c	Disc Buffer A3000	RISC Dev	39.95
0795c	Disc Buffer A310/A440	RISC Dev	34.95
0127c	Disc Buffer A5000	RISC Dev	34.95
5808g	Eagle M2	Wild Vis	295.00
5812c	EMU Interface	Cumana	59.00
0222g	Floating Point Accelerat	Acorn	99.00
4630e	High Density FDC	RISC Dev	119.00
4631e	High Density FDC + Drive	RISC Dev	159.00
0271c	I/O Podule - Arch	Acorn	79.95
5809g	Lark (Sound Sampler)	Wild Vis	195.00
0236c	MEMC1A Upgrade Kit	RISC Dev	25.00
0273c	MIDI Podule - Arch	Acorn	69.00
0238c	MIDI/User Port A3000	Acorn	46.55
5880g	Multi I/O + 1.6Mb Floppy	Leading Ed	199.00
5882g	Multi I/O 120HD IDE	Leading Ed	320.00
5881g	Multi I/O 85HD IDE	Leading Ed	239.00
5883c	Multi I/O Paral/Ser Port	Leading Ed	45.00
5849c	Numeric (Maths) Co-Pro	Aleph One	99.00
5461c	Oak-Recorder II	Solent	39.95
5848b	PC Windows Driver S'ware	Aleph One	25.00
5844g	PC386 1Mb Card For Arch	Aleph One	379.00
5870g	PC386 1Mb For A3020/4000	Acorn	225.00
5845g	PC386 4Mb Card For Arch	Aleph One	489.00
5846g	PC486 1Mb Card For Arch	Aleph One	479.00
5847g	PC486 4Mb Card For Arch	Aleph One	579.00
5871g	PC486 4Mb For A3020/4000	Acorn	420.00

ARM 3 UPGRADE - NOW ONLY £99 + VAT

Achieves comparable speeds to 25Mhz A5000

- Processor upgrade for the Archimedes A310,440,400/1 series and A3000.
- Boosts performance and reduces the speed loss associated with high bandwidth screen modes.
- Speed increases are between 3 and 8 times depending on the application.

5874c	Printer/SCSI Interface	Atomwide	75.00
0884b	RISC OS 3 Hardware Kit	Ifel	21.00
0887b	RISC OS 3 Hardware Kit	Acorn	25.53
0888d	RISC OS 3.1	Acorn	72.34
0885g	RISC OS 3.1 BULK (10)	Acorn	339.58
0158e	SCSI 16bit Card For Arch	Oak	189.95
0863e	SCSI Card (Cumana) Arch	Cumana	189.95
0216g	SCSI Card (V 3) For Arch	Acorn	250.00
5297b	User Port Power Supply	RISC Dev	17.00
0139b	VIDC Mode Expander	RISC Dev	29.95
5441e	ZY-FI Stereo Speaker Sys	Zydec	34.74

HARD DISC DRIVES

5285g	A3000 External IDE 260Mb	RISC Dev	489.00
5286g	A3000 External IDE 450Mb	RISC Dev	689.00
5272g	A3000 Internal IDE 80Mb	RISC Dev	299.00
5273g	A3000 Internal IDE 120Mb	RISC Dev	389.00
5275g	A3000 Internal IDE 210Mb	RISC Dev	539.00
5242g	A3010 Internal IDE 80Mb	RISC Dev	289.00
5243g	A3010 Internal IDE 120Mb	RISC Dev	379.00
5245g	A3010 Internal IDE 210Mb	RISC Dev	529.00
5232g	A3020 Internal IDE 80Mb	RISC Dev	229.00
5233g	A3020 Internal IDE 120Mb	RISC Dev	299.00
5235g	A3020 Internal IDE 210Mb	RISC Dev	479.00
5851g	A4 60Mb HD Upgrade	Acorn	350.00
5294g	A5000 260Mb 2nd Drive	RISC Dev	319.00
5298g	A5000 450Mb 2nd Drive	RISC Dev	519.00
5265g	Arch External IDE 260Mb	RISC Dev	479.00
5266g	Arch External IDE 450Mb	RISC Dev	679.00
5290g	Arch IDE 20Mb Hard Card	RISC Dev	199.00
5292g	Arch IDE 80Mb Hard Card	RISC Dev	299.00
5293g	Arch IDE 120Mb Hard Card	RISC Dev	379.00
5295g	Arch IDE 210Mb Hard Card	RISC Dev	529.00
5255g	Arch Internal IDE 260Mb	RISC Dev	379.00
5256g	Arch Internal IDE 450Mb	RISC Dev	579.00
5882g	Multi I/O 120HD IDE	Leading Ed	320.00
5881g	Multi I/O 85HD IDE	Leading Ed	239.00
5214e	SyQuest 105Mb Cartridge	RISC Dev	69.00
5213g	SyQuest 105Mb Hard Drive	RISC Dev	379.00

MODEMS/COMMS SOFT/HARDWARE

5913b	Chatter	4Mation	33.00
0093c	Hearsay II	RISC Dev	75.00
5593g	MicrolinFx Fax/Modem Pack	BEEBUG	239.00
3111g	SM2400 + Hearsay II+Lead	BEEBUG	139.00
5592g	Sportster Fax/Modem Pack	BEEBUG	329.00

MONITORS & ACCESSORIES

0184g	Acorn AKF17 Monitor	Acorn	140.00
0182g	Acorn AKF30 Monitor	Acorn	211.91
0180g	Acorn AKF40 Monitor	Acorn	211.91
0189g	Acorn AKF50 M'scan HiRes	Acorn	306.38
0185g	Acorn AKF52 Multiscan	Acorn	254.47
0532g	Cub 2038 20in Monitor	Microvitec	999.00
0525g	Cub-Scan 1440 Monitor	Microvitec	399.00
0503g	Phillips Green Monitor	Phillips	87.00
0501g	Ranger 5017 Monitor	Aydin	853.00
0502g	Ranger 5021 Monitor	Aydin	1380.00
0545d	Screen Filter 14" C.Fibre	BEEBUG	24.64
0546e	Screen Filter 14" Glass	Memorex	78.60

Upgrade to an AKF50

Trade in your Monitor for the new AKF50.

AKF18 to AKF50	**£221.28 (£260 inc VAT)**
Standard Arch Colour to AKF50	**£ 263.83 (£310 inc VAT)**

NETWORKS

5076b	!APPFS	Angelsoft	130.00
4601e	A3000/3010 Ethernet Card	RISC Dev	139.00
5025b	A3020/4000 Econet Module	Acorn	49.00
4602e	A3020/4000 Ethernet Card	RISC Dev	139.00
5853c	A4 Econet Upgrade	Acorn	50.00
4600e	Arch/A5000 Ethernet Card	RISC Dev	139.00
5005c	AUN Level IV Fileserver	Acorn	394.00
5006c	AUN Level IV SL Upgrade	Acorn	199.00
5075b	Classprint LD	Oak	75.00
5017b	Econet Upgrade M128/Arch	Acorn	47.95
5037e	Ethernet A3020/A4000 Int	Acorn	149.00
5038e	Ethernet Card for A4	Atomwide	199.00
1209	Networking leaflet	BEEBUG	0.00*
5008c	TCP/IP Programmers Pack	Acorn	50.00*
5007d	TCP/IP Rel 2 Single User	Acorn	99.00
5009c	TCP/IP Release 2	Acorn	394.00

POCKETBOOK ACCESS/SOFTWARE

0390e	Pocket Book Computer	Acorn	169.95
0581b	A-Link	Acorn	42.51

0584b	Flash Disc 256K	Acorn	59.53
0588c	Flash Disc 512K	Acorn	85.06
0587b	Mains Lead	Acorn	12.72
0586b	OPL Editor	Acorn	59.53
0582b	Parallel Link	Acorn	25.49
0591b	Desk Stand	Widget	14.00
0589b	Finance Pack	Widget	42.00
0590b	Games Pack 3	Widget	29.00
0583b	RAM Disc 128K	Acorn	51.02
0596b	Schedule	Acorn	16.98
0597g	Schedule Class Pack	Acorn	170.17

PRINTERS

0333g	Acorn Inkjet Printer	Acorn	229.00
0364g	Canon BJ10sx - Black	Canon	179.00
0365g	Canon BJ10sx - White	Canon	179.00
0451g	Canon BJ20 - Cream	Canon	265.00
0347g	Canon BJ200 Printer	Canon	249.00
0346g	Canon BJ230 Printer	Canon	315.00
7510g	Canon BJ300 Printer	Canon	329.00
7511g	Canon BJ330 Printer	Canon	415.00
0320g	Canon BJC600 Col Printer	Canon	455.00
7525g	Canon BJC800 Col Printer	Canon	1370.00
0328g	Epson FX850 Printer	Epson	323.75
0388g	Epson LQ100 Printer	Epson	176.40
0329g	Epson LQ450 Printer	Epson	199.00
0374g	Epson LQ570 Printer	Epson	240.00
0382g	Epson LQ870 Printer	Epson	424.80
0377g	Epson LX100 Printer	Epson	155.00
0378g	Epson LX400 Printer	Epson	136.13
0322g	Epson LX850+ Printer	Epson	172.50
0396g	Epson Stylus 1000 Printer	Epson	399.00
0385g	Epson Stylus 300 Printer	Epson	215.00
0381g	Epson Stylus 800 Printer	Epson	239.00
0495g	HP310 Deskjet Printer	HP	199.00
0452g	HP510 Deskjet Printer	HP	235.00
0494g	HP550C Colour Deskjet	HP	449.00
0496g	LaserDirect HiRes4	CC	779.00
7500g	LaserDirect HiRes8	CC	1075.00
7575g	Star Laser LS-5EX	Star	649.00
0441g	Star LC-100 Colour	Star	134.00
0343g	Star LC-15 Printer	Star	193.00
0436g	Star LC-200 Colour	Star	160.00
0444g	Star LC24-100 Printer	Star	159.00
0338g	Star LC24-15 II Printer	Star	249.00
0367g	Star LC24-20 II Printer	Star	176.00
0339g	Star LC24-30 Colour Printer	Star	199.00
0340g	Star LC24-300 Colour Printer	Star	254.00
0300g	Star SJ144 Colour Printer	Star	395.00
0442g	Star SJ48 Inkjet Printer	Star	189.00
0472g	Star XB24-200 Colour	Star	341.00
0473g	Star XB24-250 Colour	Star	407.00
0477g	Star ZA-200 Printer	Star	269.50
0478g	Star ZA-250 Printer	Star	341.00

SCANNERS

1962g	ScanLight 256 - Arch	CC	185.00
1960g	ScanLight 256 A3000/4000	CC	185.00
5506g	ScanLight II A4 A3000	CC	277.00
1963g	ScanLight II A4 Arch	CC	277.00
1970g	Scanlight Pro+SCSI A5000	CC	699.00
1964g	Scanlight Pro.(No SCSI)	CC	550.00
1954g	Scanlight Video - A3000	CC	215.00
1958g	ScanLight Video - A5000	CC	215.00
0117g	Spectra (A3000 External)	RISC Dev	559.00
0119g	Spectra (A3000 Internal)	RISC Dev	549.00
0118g	Spectra Archimedes/A5000	RISC Dev	549.00

VIDEO DIGITISERS/GENLOCK

5843g	Chroma Genlock CG1-A3000	Wild Vis	215.00
5590e	Digitiser Colour - A5000	Vision	95.00
5591e	Digitiser Colour-A3000	Vision	95.00
5815g	Genlock CG3 A3000/4000	Wild Vis	242.00
5816g	Genlock CG4 A300/400/500	Wild Vis	242.00
5817g	Genlock CG5 A5000	Wild Vis	242.00
5594g	Greyhawk	Wild Vis	97.00
0877g	Hawk V9 MkII -Arch/A5000	Wild Vis	199.00
1954g	Scanlight Video - A3000	CC	215.00
1958g	ScanLight Video - A5000	CC	215.00
5589e	VIDI Digitiser Col-A3000	Rombo	72.00
5588e	VIDI Digitiser Col-Arch	Rombo	72.00

SOFTWARE

ACCOUNTING

5458c	Business Accounts	Minerva	275.00
1915c	Financial Accountant	Silicon V	227.17
0947b	Home Accounts	Minerva	33.00
0926c	Nominal Ledger	Minerva	79.95
5470c	Payroll Manager	Silicon Vi	66.00
0922c	Personal Accounts	Apricote	29.00
0920c	Prophet	Apricote	131.00
0923b	Prophet Entry Level	Apricote	8.00
0925c	Purchase Ledger	Minerva	25.00
1917c	Share Holder	Silicon V	102.13

COMPUTER AIDED DESIGN

1909c	Arc PCB Professional	Silicon V	234.00
0913c	Arc-PCB	Silicon V	99.00
1931c	CADet	Minerva	127.00
1932b	KiddiCAD	Oak	58.00
0958c	Oak PCB	Oak	93.00
1945g	ProCAD	Minerva	393.00
1910c	SolidCad	Silicon V	78.00
1911c	SolidTools	Silicon V	225.53
1936b	WorraCAD	Oak	93.00

DESKTOP PUBLISHING

1113c	Impression II DTP	CC	115.00
1111c	Impression Publisher	CC	135.00
1112c	Impression Style	CC	97.00
0114	Ovation Demo Disc	RISC Dev	4.25
0108c	Ovation DTP	RISC Dev	99.00

DTP TOOLS/UTILITIES

5500c	100 Monotype Fonts	Look	79.00
0096b	Desktop Thesaurus	RISC Dev	19.00
5440b	Equasor	CC	36.00
1249c	First Impressions-Manual	Word Proc	29.95*
1976a	Font FX	Datastore	9.00
1921b	Font Pack Newhall	Acorn	34.00
1920b	Font Starter Pack	Acorn	34.00
5783b	Glimpse	Sherston	8.00
1269b	Good Impression Manual	Word Proc	26.95*
5731b	Image Outliner	Iota	72.00
5464b	Impression Business Supp	CC	38.00
1237b	Impression Guide	Dabs P	14.95*
5526c	ShowPage	CC	139.00
0099b	Sleuth OCR	RISC Dev	49.00
5510b	Tracer	Midnight G	46.00
0092b	TypeStudio	RISC Dev	45.00
5945b	WordWorks	CC	37.00

DATABASES

5450b	Archivist Pro	Oregan	34.00
5744c	Datapower	Iota	124.00
1913c	DataVision	Silicon V	77.00
5760b	Desktop Database	Iota	52.00
1992c	Flexifile	Minerva	68.00
5720b	Junior Database	Iota	52.00
0917c	Knowledge Organiser II	Clares	75.00
0098b	Masterfile 3	RISC Dev	49.00
0989c	Multistore II	Minerva	123.00
1007c	Pinpoint	Longman	69.00
1011b	Pinpoint Junior	Longman	27.00
5496c	Recordz	Colton	0.00
0931g	S-Base 2 Developer	Longman	186.00
0932g	S-Base 2 Developer Plus	Longman	369.00
0933c	S-Base 2 Personal	Longman	92.00
5447c	Squirrel 2	Digital	129.00
5449c	Squirrel C Dev Toolkit	Digital	97.00
0921c	System Del Plus V2	Minerva	39.99
5717b	Viewpoints Database	Sherston	35.00

EDUCATIONAL SOFTWARE

5718b	10/10 Algebra	10 out of 10	19.00
5952b	10/10 Dinosaurs	10 out of 10	21.00
5955b	10/10 Driving Test	10 out of 10	21.00
5716b	10/10 Early Essentials	10 out of 10	19.00
5709b	10/10 English	10 out of 10	19.00
5954b	10/10 French	10 out of 10	21.00
5951b	10/10 Junior Essentials	10 out of 10	21.00
5708b	10/10 Numbers	10 out of 10	19.00
5953b	10/10 Statistics	10 out of 10	21.00
5927b	Adventure Playground	Storm	17.00
5700b	Animated Alphabet	Sherston	19.00
5781b	ArcVenture 1- The Romans	Sherston	28.00
5713b	ArcVenture II- Egyptians	Sherston	28.00
5788b	ArcVenture III- Vikings	Sherston	28.00
5789b	Badger Trails	Sherston	36.50
5933b	Balloons & The Zoo	Topologika	27.00
5928b	Best Four Adventure	ESM	39.60
5925b	Best Four Maths	ESM	39.60
5488c	CableNews	Lingenuity	136.00
1358b	Concept Designer S/Ware	Longman	22.00
5766b	Connections	Sherston	27.00
5737b	Control Logo	Longman	25.00
1355e	Count with Blob - C Kbd	Widget	20.00
5763b	Crystal Rain Forest	Sherston	34.50
5916b	Darryl The Dragon	4Mation	19.50
1008b	Desk Top Stories	Resource	35.00
5701c	Desktop Folio	ESM	57.00
0935b	Dread Dragon Droom	Resource	29.95
0902b	First Logo	Longman	21.00
5918b	Flossy The Frog	4Mation	24.50
5702b	Freddy Teddy	Topologika	18.00
5703b	Freddy's Adventure	Topologika	18.00
1195b	Fun School 2 (8+)	Europress	16.98
5704b	Fun School 3 (-5)	Europress	17.00
5705b	Fun School 3 (5-7)	Europress	17.00
5706b	Fun School 3 (7+)	Europress	17.00
5791b	Fun School 4 (-5)	Europress	17.00
5792b	Fun School 4 (5-7)	Europress	17.00
5793b	Fun School 4 (7+)	Europress	17.00
5491b	Genesis II	Oak	99.00
5761b	Graph_IT	Sherston	19.00
1949c	Kid Pix	ESM	34.00
5747b	Linkword - French	Minerva	35.00
5748b	Linkword - German	Minerva	35.00
5746b	Linkword - Spanish	Minerva	35.00
0905c	Logo	Longman	54.00
5471c	Magpie	Longman	40.00
5798b	Micro French	LCL Soft	24.00
5931b	Naughty Stories Vol 1	Sherston	48.00
5958c	Navigator	Topologika	43.00
5936b	Noddys' Playtime (3-7)	Jump Bean	20.00
0928b	Numerator	Longman	38.00
1947b	Pendown Plus	Longman	67.00
1959b	Pendown v2	Longman	45.00
1011b	Pinpoint Junior	Longman	27.00
5707b	Podd	ESM	25.00
5926b	Primary Maths Course	LCL Soft	24.00
1934c	Talking Pendown	Longman	55.00
5921b	Teachers Cupboard	Sherston	27.50
5712b	Teddy Bears' Picnic	Sherston	23.00
5485c	Topographer	Clares	62.00
5431b	Touch Type	Iota	35.00
5608b	Typing Tutor	Willow	23.90
5930b	Wizards Revenge	Sherston	17.00
5715b	Worst Witch	Sherston	25.00

GAMES

5955b	10/10 Driving Test	10 out of 10	21.00
PAOMa	ArcOmnibus Games	RISC Dev	12.68
5435b	Battle Chess	Krisalis	20.00
5570b	Birds of War	4th Dimension	25.00
5451b	Black Angel	4th Dim	25.00
1978b	Break 147 & Superpool	4th Dimension	25.00
5571b	Carnage Inc.	4th Dimension	19.00
5437b	Champions	Krisalis	22.00
5532b	Chess 3D	Mic Power	16.98
5572b	Chocks Away Compendium	4th Dimension	26.00
5566b	Chopper Force	4th Dimension	19.00
5577b	Chuck Rock	Krisalis	17.00
5941b	Crystal Maze	Sherston	30.00
5598b	Cyber Chess	4th Dimension	26.00
5599b	Demon's Lair	4th Dimension	19.00
5448b	Dungeon	4th Dimension	25.00
5728b	E-Type Compendium	4th Dimension	18.00
1983b	Ego: Repton 4	Superior	17.00
5476b	Elite Gold	Hybrid	32.00
5575b	Exotic Adv Sylvia Layne	4th Dimension	19.00
5494b	Games Wizard 2	Gamesware	17.00
5795b	Gods	Krisalis	19.00
5574b	Haunted House	4th Dimension	19.00
5547b	Heimdall	Krisalis	22.00
1977b	Hero Quest	Krisalis	20.00
5725b	Holed Out Compendium	4th Dimension	17.50
5724b	James Pond	Krisalis	19.00
5423b	James Pond 2 - Robocod	GamesWare	21.00
1985b	Krisalis Collection	Krisalis	20.50
5595b	Last Ninja	Superior	18.00
5546b	Lemmings	Krisalis	18.00
5543b	Lemmings 2 - Tribes	Krisalis	25.00
5463b	Lotus Turbo Challenge 2	Krisalis	19.00
5582b	Magic Pockets	Renegade	22.00
5794b	Oh No! More Lemmings	Krisalis	15.00
5420b	Omar Sharif's Bridge	Krisalis	19.00
5561b	P I A Sam 1	Superior	17.00
5562b	P I A Sam 2	Superior	21.00
5563b	P I A Sam 3	Superior	21.00
5569b	Pandora's Box	4th Dimension	17.00
5535b	Phaethon	System Int	21.00
5466b	Populous	Krisalis	21.00
5544b	Powermonger	Krisalis	25.00
5422b	Quark	Oregan	24.00
5533b	Real McCoy II	4th Dim	22.00
5565b	Real McCoy III	4th Dim	22.00
5548b	Real McCoy IV	4th Dim	22.00
5597b	Saloon Cars Deluxe	4th Dimension	24.00
5474b	Saloon Cars Extra Course	4th Dimension	15.00
5434b	Sim City	Krisalis	22.00
5579b	Simon the Sorcerer	Gamesware	34.00
5537b	Small	Virgo	21.00
5443b	Spheres of Chaos	Matt Black	19.00
5799b	Stunt Racer 2000	4th Dimension	25.00
5790b	Swiv	Krisalis	18.00
5438b	Technodream	Superior	19.00
1997b	Virtual Golf	4th Dimension	25.00
5549b	Warlocks	Network 23	25.00
5424b	Xenon 2	GamesWare	21.00
5421b	Zool	Gremlin	19.00

GRAPHS/DRAW/PAINTING

5521b	ArcLight	Ace	43.48
1942b	ArcTist	4th Dimension	18.00
1103b	Artisan II	Clares	42.00
1938d	Artworks	CC	122.00
0962b	Atelier	Minerva	68.00
5499b	Bitfolio	Look	25.00
5488c	CableNews	Lingenuity	136.00
5469b	Card_Shop	Clares	21.00
5912b	Chameleon	4Mation	33.00
PCHWb	Chartwell	RISC Dev	25.49
5914b	Craftshop 1	4Mation	19.00
5915b	Craftshop 2	4Mation	19.00
5749d	Designer V3	Techsoft	193.00
1937b	Euclid II RISCOS	Ace	79.00
5520b	Film Maker	Silicon V	86.91
1090c	Graph Box Professional	Minerva	102.00
0912b	Graph Box v2	Minerva	56.00
5761b	Graph_IT	Sherston	19.00
5442b	Illusionist	Clares	68.00
5734b	Image Animator	Iota	68.00
0934b	Imagery	Palette S	69.00
5919b	Jiglet	4Mation	19.00
1150b	Jigsaw	4Mation	19.00
1949c	Kid Pix	ESM	34.00
5497b	Morpheus	Oregan	28.00
5937b	Poster	4Mation	75.00
1095b	Presenter GTI	Lingenuity	65.00
5492c	PrimeArt	Minerva	68.00
0944c	Pro-Artisan 2	Clares	104.00
5509b	Render Bender II	Clares	75.00
5498b	Rephorm	Oak	49.00
5472c	Revelation II	Longman	74.00
5490c	Revelation ImagePro	Longman	125.00
5938b	smArt	4Mation	50.00
1912b	SolidsRender	Silicon V	78.00
1941b	SuperPlot	Silicon V	24.80
5512c	Titler	Clares	117.00
5940c	Vector	4Mation	75.00

INTEGRATED PACKAGES

0900c	Advance	Acorn	88.00
5427b	DeskTop Office II	Minerva	74.00
5489c	Fireworkz	Colton	145.00
0901c	Pipedream 3	Colton	71.00
0990c	Pipedream 4	Colton	118.00

LANGUAGES/COMPILERS

0938b	ABC II Basic Compiler	Oak	97.00
1907b	Cambridge Pascal	Oak	89.00
0946c	Desktop Assembler	Acorn	118.00
0945e	Desktop C	Acorn	178.00
0100b	Easy C	RISC Dev	49.00
0110b	Easy C Upgrade	RISC Dev	10.00
0905c	Logo	Longman	54.00
1906b	RiscBasic Compiler	Silicon V	77.00
5428b	RiscForth	Silicon V	77.00
1079b	Robo Logo	Silicon V	38.00

MUSIC/SPEECH/SOUND

5576b	ARCticulate	4th Dimension	19.00
1091b	Armadeus	Clares	58.00
5944b	AudioWorks	CC	47.00
5522b	Digital Symphony	Oregan	42.00
1971b	MicroStudio	EMR	66.00
0835b	Notate	Longman	42.00
5461c	Oak-Recorder II	Solent	39.95
5486c	Rhapsody 3	Clares	77.00
1939b	Rhythm-Bed	Clares	38.00
5523b	Serenade	Clares	105.00
5517c	Sibelius 6	Sibelius S	160.00
5457b	Sound Tracker	Leading Ed	36.00
5519b	Speech! Arch	Superior	16.00
5459b	Voice Generator	MJD	30.00
5513b	Vox Box	Clares	45.00

PRINTER DRIVERS

5527a	Expression-PS	CC	15.00
0095b	HP Deskjet Colour Driver	RISC Dev	15.00
0090b	Star/Epson Colour Driver	RISC Dev	15.00
1940b	SuperDump	Silicon V	19.00
5505b	Turbo Driver-BJ Series	CC	42.00
5503b	Turbo Driver-Canon Colou	CC	42.00
5511b	Turbo Driver-Epson Styls	CC	42.00
5508b	Turbo Driver-HP Deskjet	CC	42.00

SPREADSHEETS

0900c	Advance	Acorn	88.00
0929c	Eureka v2	Longman	95.00
0901c	Pipedream 3	Colton	71.00
0990c	Pipedream 4	Colton	118.00
5455b	ProSHEET	Silicon V	39.00
1903d	Resultz	Colton	106.00
5487c	Schema 2	Clares	105.00

UTILITIES

5446c	Almanac V3	Stallion	68.00
0957b	Ancestry	Minerva	58.00
1946b	ARC-DFS	Dabs P	21.00
5877b	Armlock	Digital	35.00
5913b	Chatter	4Mation	33.00
1106b	Compression	CC	34.00
5456b	Disc Rescue	Look	28.00
5109c	Disc Sharer	Soft Sol	137.00
0094b	Hard Disc Companion II	RISC Dev	45.00
5445b	Investigator II RISCOS 2	Leading Ed	21.00
5518b	Keystroke	Quantum	29.95
5497b	Morpheus	Oregan	28.00
5876b	Noise Killer (A300/A400)	Greenware	25.49
1914c	Office Tools	Silicon V	227.17
0895c	PC Emulator V1.8	Acorn	92.00
0097b	PlayBack	RISC Dev	19.00
1943c	Primemover	Minerva	69.00
5498b	Rephorm	Oak	49.00
5939b	Snippet	4Mation	32.00
PWK3b	Wimp Prog. Toolkit 3	RISC Dev	18.68

WORD PROCESSORS & EDITORS

5917b	DBEdit	4mation	28.00
PDE2b	DeskEdit 2	RISC Dev	27.19
PDE3b	DeskEdit 3	RISC Dev	27.19
5427b	DeskTop Office II	Minerva	74.00
1170b	Easiword II	Minerva	44.00
5551b	Easiwriter Dict. French	Icon	26.00
5552b	Easiwriter Dict. German	Icon	30.00
5553b	Easiwriter Dict. Spanish	Icon	30.00
5507c	EasiWriter III	Icon	132.00
1112c	Impression Style	CC	97.00
1947b	Pendown Plus	Longman	67.00
1959b	Pendown v2	Longman	45.00
PGLTb	PolyGlot	RISC Dev	16.98
5495b	Primeword	Minerva	53.00
1933c	Startwrite	Icon	55.00
5453b	StrongEd	Stallion	22.00
1934c	Talking Pendown	Longman	55.00
1918c	Tech Writer	Icon	158.00
0940b	WordWise Plus Arch Disc	CC	29.00
1902c	Wordz	Colton	86.00

All prices shown ex VAT
***after price indicates NO VAT** E+OE

THE ACORN USER



ImageBank demo

By Irlam Instruments

ImageBank is Irlam Instruments' new JPEG image compression system, and this cut-down version allows you to read JPEG files and decompress them into 24-bit sprites. The complete version allows you to compress sprites as well.

To see *ImageBank* in action, run the application and click on the iconbar icon to bring up the image directory window. Included with the demo are three 24-bit colour pictures, digitised using the new Logitech colour hand scanner, and these will be displayed in thumbnail format in the window. To view the sprites, first change to a 256-colour mode, or to a 15-bit-per-pixel desktop if you have a graphics card fitted. To decompress a sprite, simply double-click on it in the window, and it will be loaded into a full-size window.

If you want to save the sprite, click Menu over the sprite in the image directory window, and go into the Image submenu. From here you can save the sprite to disc in a number of formats. The full version of ImageBank costs £25 + VAT from Irlam Instruments on (0895) 811401.

ArtWorks Clip Art



By Kingfisher Graphics

We've mentioned Kingfisher Graphics quite a few times in the Graphics page, and now we can actually show you the exceptional quality of the *ArtWorks* clip art available.

The monthly disc contains one 300K *ArtWorks* file called *Train*, along with the *ArtWorks* viewer from Computer Concepts.

To view the picture, run the viewer, which will install itself on the iconbar, and drag the *Train* file to the viewer's icon.

The picture looks particularly impressive in 256-colour modes, such as 28 or 21, and with a colour card which is capable of displaying a 16 bit-per-pixel desktop mode the effects are breathtaking.

Another example of Kingfisher's clip art is the excellent Linford picture on page 32, which really shows the power of *ArtWorks*.

For more information on the clip art available from Kingfisher Graphics, phone (0247) 888698.

Basic

Two programs to demonstrate the use of functions and the value of using local variables in routines to create program independence. See page 115 for more information.

*INFO

An eclectic mix of useful and interesting programs, from a background printer spooler to a sophisticated sound waveform editor. See page 119 for details.

KeyStroke



By Quantum Software

KeyStroke (reviewed in the October 1993 issue) is one of those utilities you load up and then can't live without.

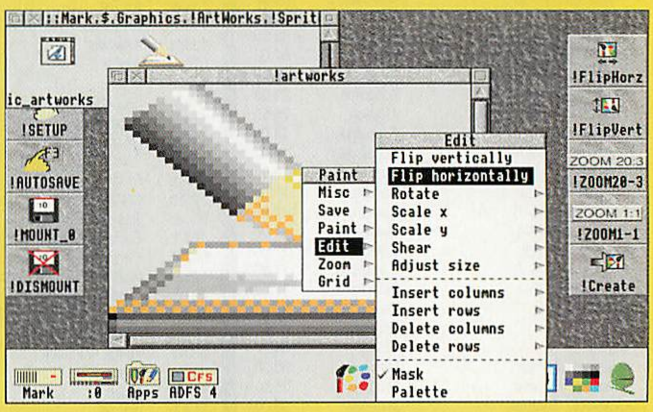
It provides key shortcuts for absolutely any desktop application.

This specially-prepared version from Quantum Software contains built-in shortcuts for the Filer and *Paint*; the full version can add shortcuts to any desktop application you care to mention.

To take an example, when the *KeyStroke* demo is loaded, position the pointer over any Filer window, press CTRL-A, and all the objects in the window will be selected. Now you can delete all the objects by pressing CTRL-X, or clear the selection using CTRL-Z.

Other handy Filer shortcuts include ALT-RETURN, to open the Risc OS 3 Apps window in a tidy place, ALT-CTRL-E, to empty the Ram disc, ALT-Select, to count files....the list goes on and on.

With Paint, standard keypresses work at last. For example, pressing F3 will pop up a



save box and F1 displays sprite information. However, it does not stop there: you can bring up the colour box with CTRL-C, display the tools box with CTRL-T, flip sprites vertically (CTRL-V) or horizontally (CTRL-H), and many more. This version of the software contains 60 defined key shortcuts, and you can obtain the full version for £29.95 inc VAT from Quantum Software on (0506) 411162.

COVER DISC

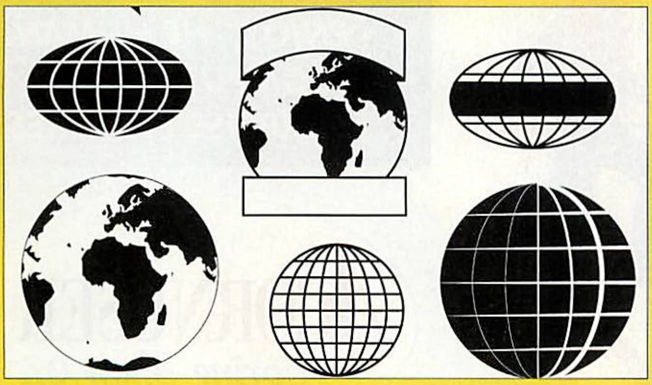
Nigel Gatherer's Clip Art Column



By Nigel Gatherer

A double-bill this month, with two packed *Draw* files of clip art.

The first, *Globes*, contains a weird and wonderful collection of globes, from a map of the world to the Man from Uncle logo. *Scrolls*, on the other hand, contains a selection of scrolls and banners into which you can place your own text to create attractive headlines or eye-catching flashes. There's even a shield for you to decorate with your own coat of arms.



Stunning real-time shading demo

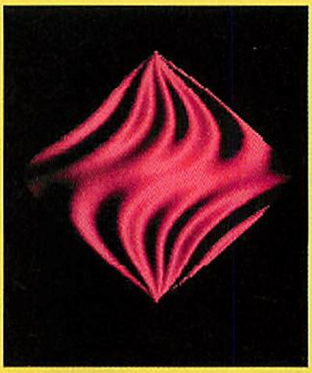
By ArmOric

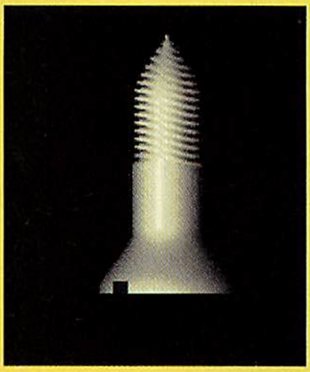
This is quite possibly the best graphics demo that we at *Acorn User* have ever seen. Clever shading techniques are nothing new – we've featured Gouraud shading in the magazine many times before – but the really impressive part of this demo is that it's performed in real time.

Although the pictures on this page may look impressive, it's only by running the program that you get a feel for the realism of the shading.

The mouse pointer acts as the light source in the demo, and clicking the middle mouse button changes the object being illuminated. The objects defined include a vase, a joystick, a bell, a tube of toothpaste, a chocolate wrapper and a screw.

There's also a bonus demo showing a coloured barrel being lit by the pointer. Quite breathtaking.





Disc problems?

Our cover discs are thoroughly tested at each stage of production, but it is possible that one or two faulty discs may slip through. If you suspect that your disc is faulty, then do the following to check it:

1. Put the disc in your drive.
2. Click Menu (the middle mouse button) over your floppy disc drive icon, on the left of the iconbar.
3. Click on the Verify option and a window will pop up, showing the verification process as it proceeds.

If the verifying process finishes with no errors (the window says 'Disc Verified'), then your disc is not physically faulty and you should contact our editorial office at the address given on the contents page.

If an error is reported, however, your disc is faulty and it will be replaced free of charge. Send it with your name and address to: PC Wise Ltd, Dowlais Top Business Park, Dowlais, Merthr Tydfil, Mid Glamorgan CF48 2YY

Risc OS 2

Most of the programs on the Acorn User Cover Disc are compatible with both Risc OS 2 and Risc OS 3. However the discs are only tested on the new system, and we cannot guarantee that everything will work with the old system. Our advice is to upgrade as soon as possible, as compatibility problems will occur more often as software developers make use of the new operating system.

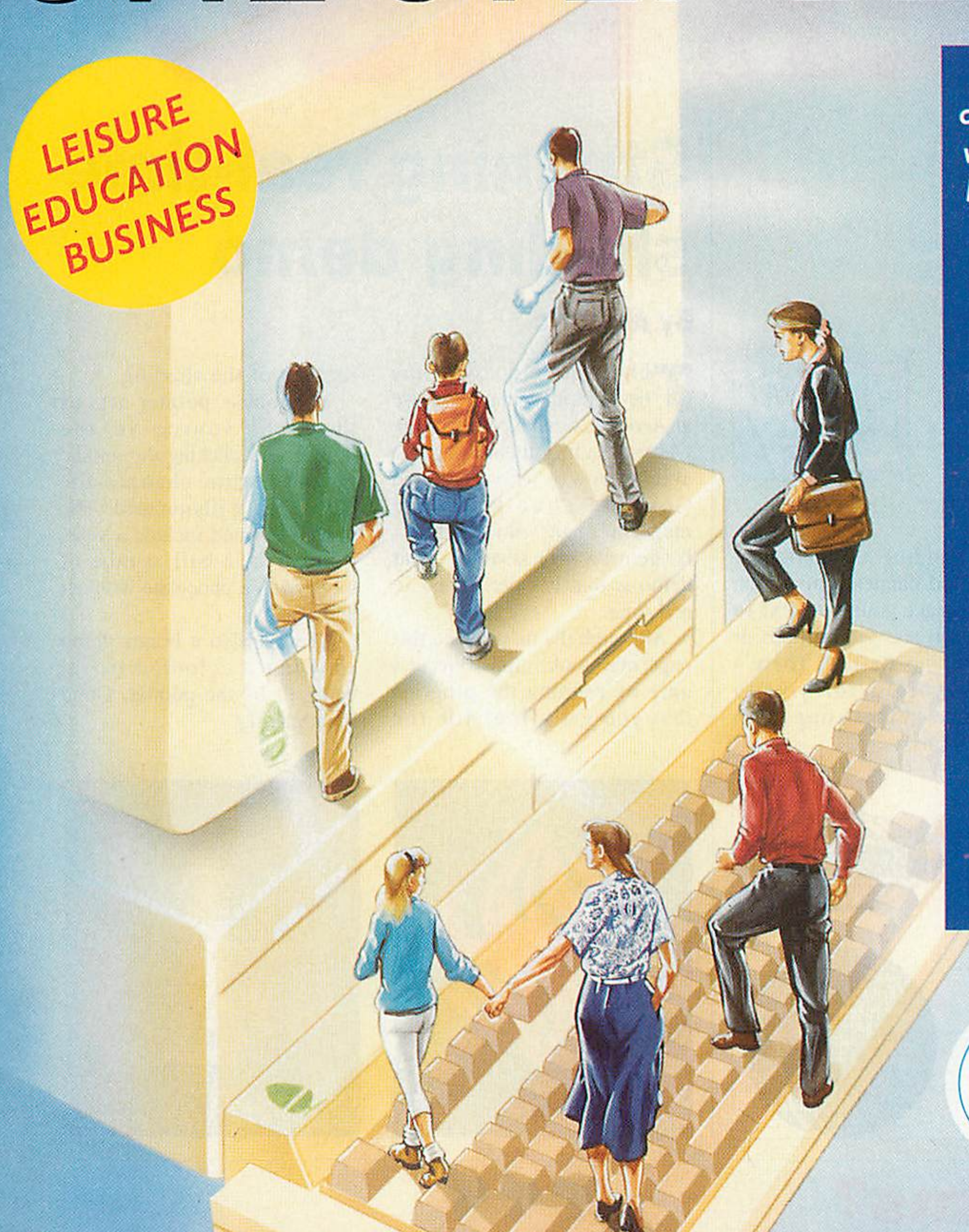
The February disc had a problem with Risc OS 2. To fix the disc, simply copy all the applications (except the Menu) from the disc onto a blank E-formatted disc. Now copy the Menu application from this month's disc onto your new disc, and everything will work.

To access the files on the February disc so you can copy them to another disc, do the following:

1. Insert the disc as per usual.
2. Double-click on *!!Menu* while holding down SHIFT.
3. Double-click on *!ArcFS* to load it onto the iconbar.
4. For each application, double-click on it while holding down SHIFT, and then double-click on the Archive file inside; so, for example, with *INFO, double-click on !StarInfo with SHIFT held down, and then double-click on StarInfo.
5. This will open a window from where you can copy the files to another disc.

WALK THROUGH THE SCREEN AND TAKE

ONE STEP BEYOND



Take a look inside our vast computer and see how it crackles with life, bursting with boundless knowledge, ready to enthral and excite ACORN COMPUTER users both old and new.

See, try and buy the latest hardware and software on offer from over 60 exhibitors with many new products on show for the first time.

PLUS

- FREE THEATRE
- FREE SHOW GUIDE
- SCHOOLS PROJECTS
- CELEBRITY VISITS
- ENJOY THE HUMAN COMPUTER GAME
- SURPRISE FEATURES

ACORNUSER
Spring Show 94

ACORN USER SPRING SHOW '94

HARROGATE INTERNATIONAL CENTRE - 22nd to 24th APRIL 1994

For Best Value Order Your Advance Tickets NOW

ADVANCE TICKET APPLICATION

ADULT TICKETS £4.00	(£5.00 at Door)
UNDER 16 TICKETS £2.00	(£2.50 at Door)
FAMILY TICKETS £10.00	(£13.00 at Door)

Opening Times : 10am - 5pm Daily

Please send this application form to
SAFESELL EXHIBITIONS LTD, MARKET HOUSE, CROSS ROAD, TADWORTH, SURREY, KT20 5SR.

VISA & MASTERCARD HOLDERS CAN PHONE 0737 814713 FOR TICKET ORDERS

Please rush me :

____ Adult ____ Under 16 ____ Family Tickets

I enclose a cheque / postal order for £ ____ made out to SAFESELL EXHIBITIONS LTD or please debit my Mastercard or Visa Card no.

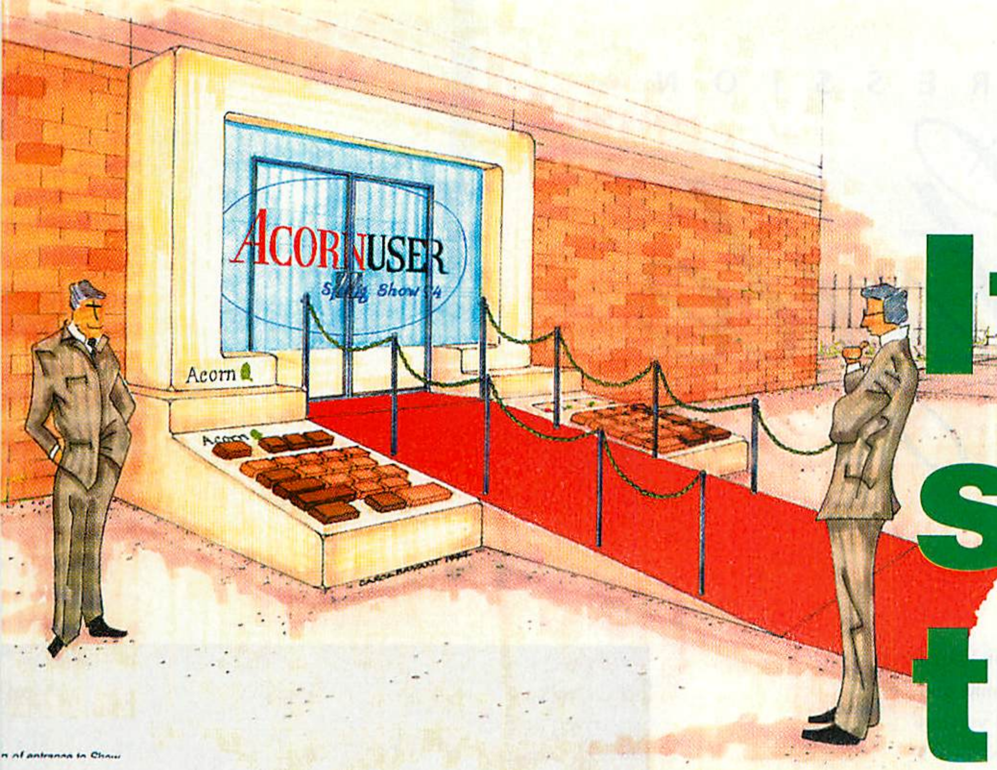
____ Expiry Date ____

Signature ____

NAME ____

ADDRESS ____

POSTCODE ____



It's show time

The second Acorn User Spring Show takes place in Harrogate over the period 22nd - 24th April 1994. Be there or miss out...

The *Acorn User* Spring Show was planted last year in the fertile soil of Harrogate in beautiful and historical North Yorkshire. Showered with loving care, fed with the enthusiasm of happy visitors and supported by the strength and dedication of many suppliers to the Acorn market, it is now growing into a magnificent and well-established event for Acorn computer users across the nation.

Visitors to the 1993 Show were able to see, try and buy a wide range of products and services designed to help them obtain the best results from their Acorn computer.

They were also able to take part in competitions, take a trip along the Treasure Trail and enjoy themselves in a relaxed, friendly and familiar atmosphere.

Bigger and better

The 1994 Show will include all of this but with additional features such as the lively, entertaining, fascinating and informative free theatre, which will provide a riveting daily programme of exciting presentations from exhibitors, on a wide variety of topics.

Presenters will include Sherston Software, Acorn Computers, *Acorn User*, Colton Software, Computer Concepts, Icon Technology, Oak Solutions, Topologika, Vertical Twist, Longman Logotron, Lindis International and more.

The Show will be themed to give visitors the impression of roaming around inside a vast computer, and this theme starts right at the entrance to the Show.

A giant computer keyboard and monitor will be constructed at the main entrance and visitors will literally 'walk through the screen' to enter the Show.

Those with time to spare can take part in the 'Human Computer Game' and battle their way around the Show, searching out the symbols and tokens to enable them to take part in the final draw for a magnificent prize of hardware and software.

The game is open to everyone, young and old, and offers the opportunity to explore the Show and have some fun at the same time.

Enthusiasts can spend some time in Club Corner chatting to friendly members of The Arm Club, Wakefield User Group, 8-bit Software User Group and Illusions Disc Magazine, while the irrepressible Town Council of Silicon Village will provide essential information from their product locator feature.

With celebrity visits, many new product launches anticipated and, of course, the team from *Acorn User* on hand at the heart of the Show, this is one event definitely not to be missed!

Entrance prices have been maintained at last year's level for even better value, so we all look forward to seeing you in Harrogate.

See next month's Acorn User for a full run-down of the Show.

Information

The Show takes place at the Harrogate International Centre, North Yorkshire over the period 22nd - 24th April 1994. Advance tickets for Visa and Mastercard holders are available from Safesell Exhibitions Ltd on (0737) 814713, or see the advert in this magazine for further information on the Show.

Advance tickets are £4 for adults, £2 for under 16s and £10 for a family ticket.

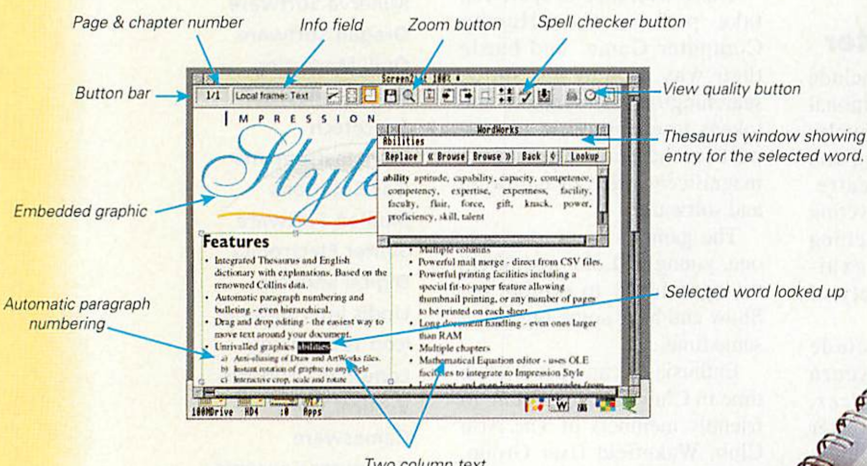
Exhibitors include

- Acorn User Magazine
- RISC Developments
- Colton Software
- Integrex Systems
- Minerva Software
- Oregan Software
- Quill Marketing
- Anglia Television
- Spacetech
- Irlam Instruments
- Oak Solutions
- Stallion Software
- Simtec Electronics
- Digital Services
- Lindis International
- Icon Technology
- Longman Logotron
- Vertical Twist
- Gamesware
- Computer Concepts
- Archimedes World
- Sherston Software
- Krisalis Software
- Acorn Computing
- Castle Technology
- Cambridge Software
- Ian Copestake Software
- The Fourth Dimension
- The Datafile
- Clares Micro Supplies
- Wyddfa Software
- Quantum Software
- Norwich Computer Services
- Topologika
- The ARM Club
- Silicon Village
- Illusions Magazine

| IMPRESSION

Style

Impression Style is the newest word processor member of the Impression family, and the most comprehensive and powerful version so far released. Over the last few years Impression has become the most successful 32-bit Acorn software application and while Impression's DTP capabilities have been renowned, the fact is that most users use it as their day to day word processor. Impression Style is a major update, with special attention paid towards improving the word processing abilities still further, and making it even easier to use than before. So, for example, it now includes automatic paragraph numbering and



two sorts of on-line help amongst dozens of other improvements.

For those with technical writing needs it includes a mathematical equation editing utility and table building utility. For writers it includes what Archimedes World called "the superb WordWorks dictionary and thesaurus package." Other features that help make Impression Style a better text processor include automatic abbreviation expansion - one of the greatest time saving features available, drag and drop editing, an optional, configurable tool bar, along with firm favourites such as spell check as you type.



In a *modern* world of computer software we have *created* a package to leave you with a lasting *impression*



Archimedes World summed it up by calling it "a document processor of immeasurable power and sophistication."

And for those who need complete control over the page layout and appearance, Archimedes World and Acorn User magazines both had exactly the same conclusions - "Style itself is currently the best DTP package available."

"Importing foreign formats is one thing Style handles better than any other package I have encountered."

"The manuals are brilliant and offer full details on the use of the software. In fact, these manuals are so good, it seems unlikely that there will be much need for supplemental books from third party publishers."

"At the end of the day, Impression Style is a superb product for the relatively small asking price."

Archimedes World, Feb 1994

"Impression Style represents ridiculous value for money."

Acorn User, Jan 1994

"There is no other product on the Acorn platform to touch this, whether at the £100 asking price point or at £500. Every writer should own a copy."

Archimedes World, Feb 1994

If you use your computer for word processing, then shouldn't you make sure that you use the best tools available?

Impression Style upgrade options

Upgrade from	Cost (ex VAT)	Total cost inc p&p and VAT
Impression Junior	£29 + VAT	£37.60
Impression II	£29 + VAT	£37.60
Other word processors †	£70 + VAT	£82.25

† Other word processors include: Pipedream, Wordz, Ovation, First Word Plus TechWriter, EasiWriter, StartWrite and Acorn Advance. To upgrade simply return your key / master / N°1 disc with payment to Computer Concepts.

Impression Style RRP £99 + VAT (£116.32 inc)

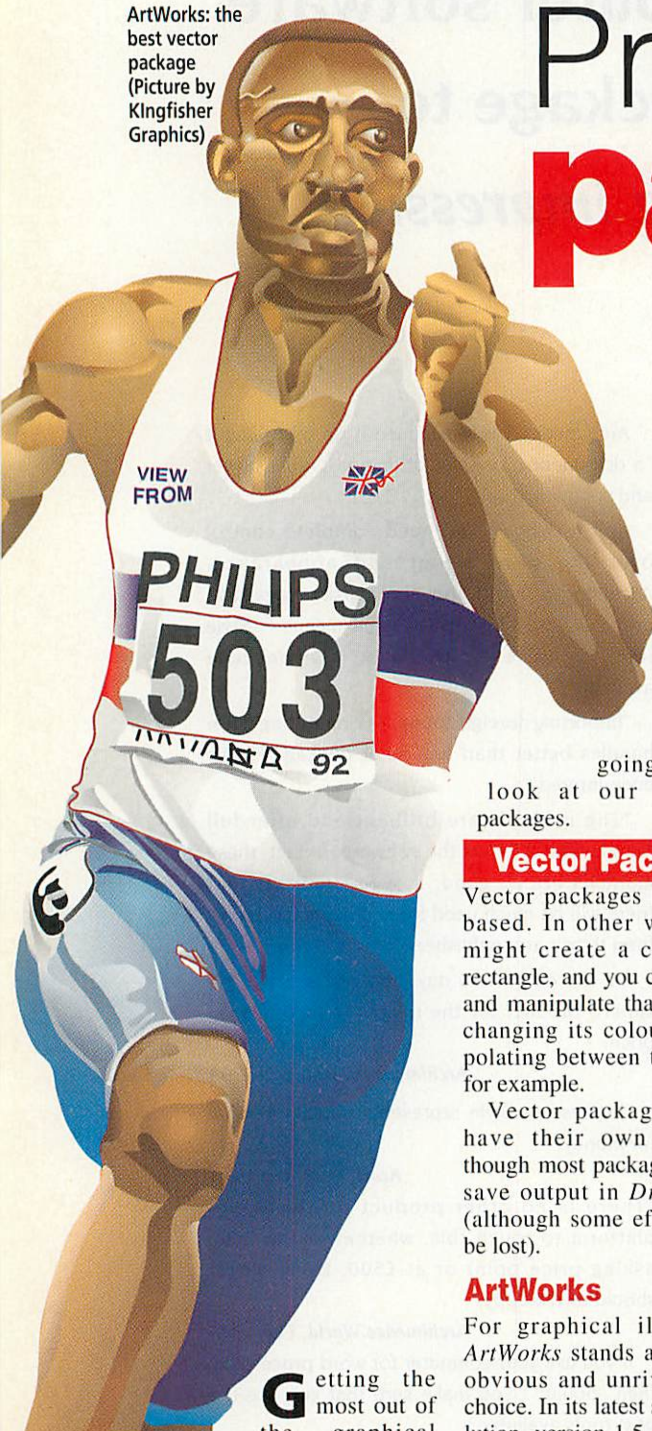
Refer to table for special upgrade offers.

2M*bytes* RAM *recommended*

Low cost educational site licences available.

Full specification available on request.

Computer Concepts Ltd
GADDESDEN PLACE, HEMEL HEMPSTEAD, HERTS HP2 6EX.
TEL: 0442 63933 FAX: 0442 231632
EMAIL: Info@CConcepts.co.uk.



ArtWorks: the best vector package (Picture by Kingfisher Graphics)

Pretty packages

Choosing the right graphics package for your needs can be pretty daunting. Jack Kreindler, Pete Worrall and Paul Wheatley take a look at the best of the competition

Getting the most out of the graphical capabilities of your Acorn computer is impossible without the right software, and the range of packages has never been bigger, or the standard higher.

Graphics software on the Archimedes can be easily split into three categories: vector, bitmap (including image processing), and 3D/rendering/modelling. Each type of package has its particular applications, and in this round-up we are going to have a look at our favourite packages.

Vector Packages

Vector packages are object-based. In other words, you might create a circle, or a rectangle, and you can then edit and manipulate that object, by changing its colour or interpolating between two objects for example.

Vector packages tend to have their own filetypes, though most packages can also save output in *Draw* format (although some effects might be lost).

ArtWorks

For graphical illustration, *ArtWorks* stands alone as the obvious and unrivalled first choice. In its latest state of evolution, version 1.5, it now features industry standard support for 24-bit sprites in the TIFF format.

The other major enhancement is 'fast loading' which implements only a core set of modules, or those used in the creation of the loaded file, adding the remaining modules only when required.

There would be little point in reiterating the countless praise that *ArtWorks* has received in its reviews, except to say that it is widely regarded as the definitive vector graphics package for the Arc. If you are an enthusiastic artist or designer who has yet to decide on what to buy, look no further. Such has been the success of the program, most notably in terms of its speed, and support for EPS file import and export (to Mac and PC platforms) that some professionals have specifically turned to Acorns for their work.

The package includes fifteen discs full of goodies, including high quality clip art and no less than 220 outline fonts.

On the other hand, to accomplish certain effects in *ArtWorks* requires long-winded tool combinations which some other packages may do more directly. So although this program excels in many ways, it might not be the only application you will ever need.

ArtWorks does not have all of those exotic and bizarre tools seen on equivalent, top-end applications like the latest revisions of *Adobe Illustrator* and *Corel Draw!*, but for as little as £120 + VAT (as offered by some dealers) it represents incredible value for money and thunders through complex redraws, leaving all other programs on any platform in its wake.

Draw

Many people do not regard free software in the same light as something they've paid the earth for. This would not be an unfair judgement as public domain and free applications are often compromised in one way or another.

Paint, for instance, is a typical 'and here's a sprite editor thrown in too' kind of program. Its vector graphics brother, though, is infinitely more than an introductory package bundled in with the operating system.

Draw is a powerful design tool, with an emphasis more on draughting and computer aided design than artistic expression. It doesn't quite have the flexibility or speed to cope with the demands of complex blends and graduated colour fills, but if fine art isn't your game then you can't do much better than *Draw*.

Housed in the Risc OS 3 Roms, *Draw* takes up none of your hard disc space and loads up nearly instantly, even if you're a floppy-only user on the slowest of machines.

Features in the Risc OS 3 version which weren't available in Risc OS 2 include a user-defined undo buffer (read the user guide carefully to configure this invaluable option), hot-key short cuts and some new creative tools like interpolation.

I can't advise you to go and buy it as you will have it already, but for all those still hanging on to Risc OS 2, upgrade now! The latest version of the operating system, with its free applications like *Draw*, is a worthwhile, if not vital, investment.

Others suggestions

Vector – For draughting purposes this program has little competition. It is now quite dated, but has certain tools of enormous use to those who want to speedily construct images full of geometric objects, and because of this *Vector* can be regarded as a

cross between a graphics and a CAD package.

It is quite expensive and only recommendable to those who have specific requirements and are unsatisfied by other programs. Having said all that, it is still a good and fast design tool which has the ability to produce impressive artwork.

Euclid – Basically this is a 3D version of *Draw*. Though this vector graphics section does not include 3D graphics, *Euclid* has been designed not just for 3D raytracing and animation (which is described in the later section on 3D editors) but also for creation of perspectivised 2D vector graphics.

Objects can be designed, arranged and lit, then viewed through in perspective through a 'camera' and the view saved directly as a *Draw* file. All the shapes, including those hidden behind foreground elements, can be edited and coloured in programs such as *Draw* and *ArtWorks* for otherwise unachievable results. An excellent program in itself, that literally adds a new dimension to vector graphic imagery.

Draw+ – This public domain package, even though it was originally intended as a substitute for the older and less competent versions of *Draw*, still offers certain minor features absent from *Draw* and remains excellent value for money being PD. As good as, if not better than *Draw* in some respects and free. Get a copy.

Poster – This object-based DTP and graphics package is perfect for text manipulation, and includes effects like 3-dimensionalise, warp, stretch, fit text to line and much more, and posters up to 100 square metres in size can be designed.

Not a complete design solution, but used in conjunction with a more powerful object editor like *ArtWorks*, *Poster* has a great deal of potential.

Bitmap Packages

Bitmap packages enable you to create sprite files. *Paint* is a basic example of a bitmap package, but the best bitmap packages also incorporate sophisticated image processing capabilities.

Choosing the best painting package is no easy decision with so many on the market. At the top end, Clares' *ProArtisan 2* and Longman Logotron's *Revelation ImagePro* clearly lead the way, with Keyboard Technology's *1st Paint* as our choice for the leading beginner's package.

Our bitmap roundup for budding computer artists looks something like this.



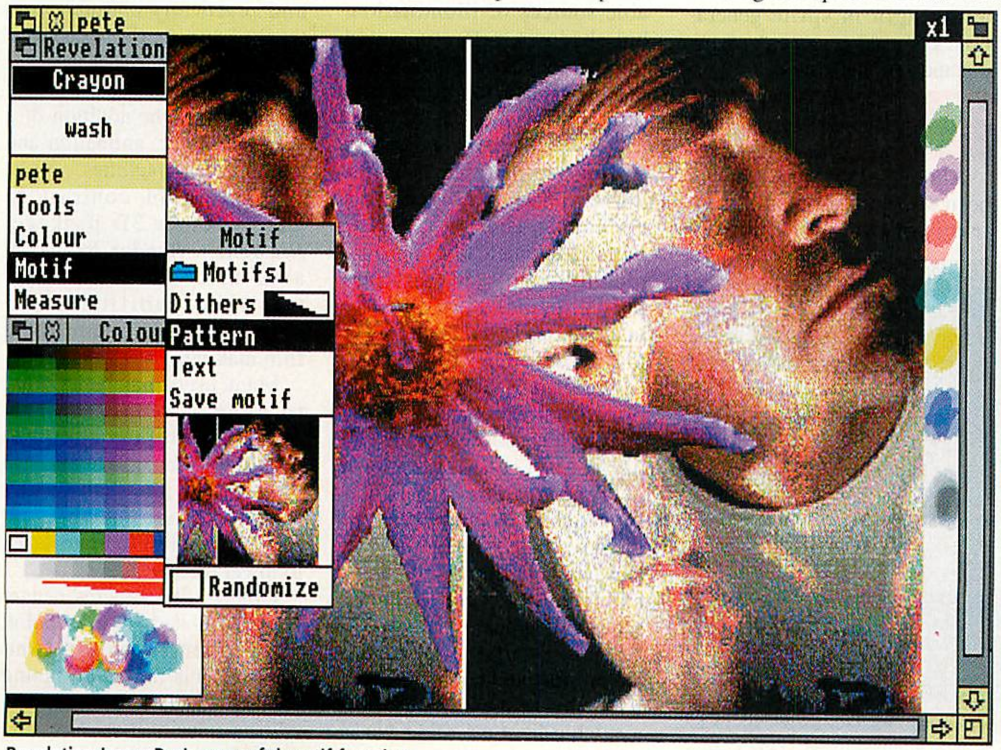
First Paint: ideal for the youger artist

Revelation ImagePro

For software design at its best look no further than *Revelation ImagePro*. The simple user interface conceals a wide range of sophisticated tools from special effects to wash colours.

The Motif option contains everything for the textile designer, and the colour shift and grey shift options resemble 'mixing desks' for the fine artist. It's even possible to generate up to eight pages of flick-book animation.

My favourite routine is merging different pictures by loading one sprite or *Draw* file into Motif and another as a screen, from where you can then easily spray, draw or fill one over the other. Graphics can also be applied to pictures through the text dialogue box and you can print those special masterpieces to your own customised requirements. On the whole the package is versatile and clearly designed to appeal to a wide age range.



Revelation ImagePro's powerful motif function

ProArtisan 2

This relative newcomer on the scene has a host of advanced and powerful features designed to meet your every need.

The range of drawing and painting tools is astonishing. Many effects such as canvas and brick are provided, ready to be applied over images, and there is a flexible visible grid option, a configurable palette and a versatile process menu allowing the masking of complex areas of a picture.

The effects and filters on the Process menu also provide a wide range of image processing tools. Sprite manipulation has never been simpler with an easy-to-use Distort option and an amazing Magic Wand that cuts out small areas of the screen. All in all this is aan excellent package for the professional artist.

Arcol Desktop

There are always surprises to be found in art and design software and *Arcol* is no exception. The fine art special effects include shade and wash, with anneal my particular favourite, providing kaleidoscopic effects of stunning shifting colours.

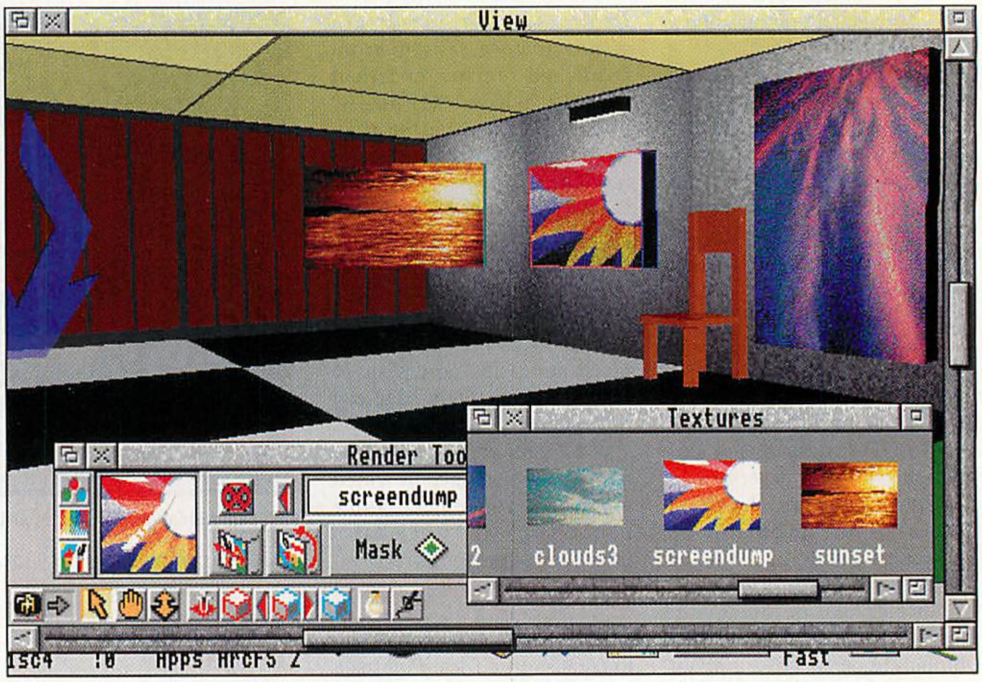
After these have stopped

moving, you can cut them out using the comprehensive sprite menu and turn them into borders using Sprite Trail or Line. In draw mode *Arcol* provides simple, yet highly effective, paintbrush options. All this, combined with the configurable graduated shade fills, makes this one the painter's choice.

First Paint

My definitive choice as starting-out software, with a beautifully designed (and configurable for the very young) Tool menu, combined with some surprisingly powerful features.

Paints can be mixed on the screen and you are introduced to keyboard skills using the clear Junior font. There is everything here for the younger artist.



Architect: not yet available, but worth the wait

Other suggestions

Artisan2 – This sensible, robust, mode 12 package provides the ideal stepping stone from beginner's software. Comprehensive and educational, with a wide range of features including colour separation for silk screen printing etc.

Kidpix – This kaleidoscopic art fun factory makes painting easy. There is a wealth of special effects and sound effects to keep you smiling.

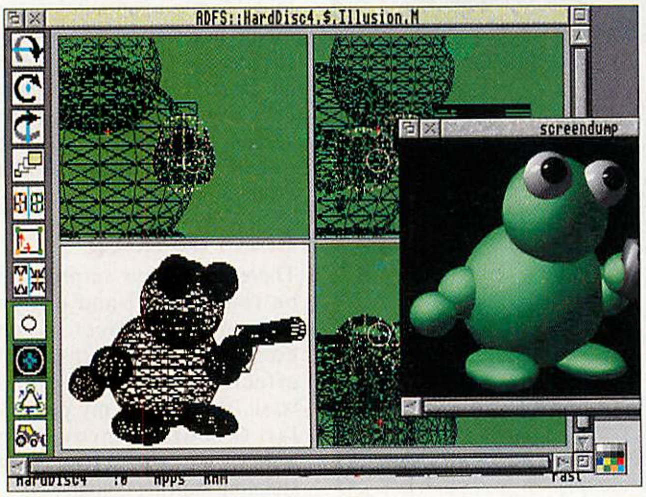
Strange tools like the Electric Mixer, Drippy Paintbrush and Venetian Blinds, plus a huge range of rubber stamps, really get you hooked. *Kidpix* is great value, educational and fun for the whole family.

Paint – Paint is an under-used but flexible package supplied free with every Acorn computer, and suitable for all ages. Well suited to frame editing in sprite sequences, and useful for icon editing and design.

QPaint – A powerful and versatile image-creation application with many unique and exotic tools. If it wasn't marred by its restriction to mode 13, this off-the-desktop style program would definitely challenge *ProArtisan* and *Revelation ImagePro* for its strength in sprite generation. For making games screens it stands unchallenged.

3D, Rendering and Modelling

Although the Arc has never been a major player in the ray tracing and 3D stakes – packages on the Amiga and more expensive graphics workstations are, in the main, way ahead – there are some excellent packages in this area. Here are our suggestions.



Illusionist can create beautiful images

Illusionist

Although this package is a definite competitor to other renderers like *Render Bender* and *Arclight*, it's not actually a true raytracer.

Objects composed of polygons are rendered from variable sources of illumination, but shadows, reflections and transparency are not possible.

This limitation forms the only major drawback with *Illusionist*, but the actual quality of finished pictures is by far the best of any Acorn rendering packages. The use of anti-aliasing dramatically improves picture quality and certainly helps to make up for the inaccuracies when rendering at low resolution modes.

Objects can be manipulated by individual points and polygons, which allows for a high degree of control when designing. The 3D view (updated by a single click in the box) is tied to the observer and target settings, and shows exactly how the rendered scene will appear.

Updates of the windows are not fast and compare badly with the real-time rotation available in some other packages. Texture mapping of any mode 12 or13 sprite is possible and a proper RGB slider window allows shades to be picked accurately from the available palette.

All in all a very competent package, both in terms of designing and rendering, which is the best 3D program for producing single image bitmap output.

Render Bender II

Render Bender originally started life as a very poor and practically unusable raytracer, due to the lack of a proper editor. The original program was, fortunately, updated with the addition of a scene designer, animation and film playback facilities.

Working in contrast to Clares' other 3D package, *Illusionist*, *Render Bender II* aims to combine full raytracing capabilities with animation and compressed film making.

Many users may be attracted to *Render Bender II* from *Illusionist* by the ability to include transparent and reflective objects, but the lack of any decent colour mixing and colour-choosing routines leads to lower quality images.

Objects like spheres cannot be manipulated point by point, as in other 3D editors, and although this makes designing easier, it merely reduces the editing possibilities. Separate animation tools allow films to

be created quite competently, but output is in the form of a Clares' animation, rather than the more standard Ace or Replay films.

Not the best 3D package on the market, but if you want to buy an all-in-one rendered animation package, *Render Bender II* is the only choice.

Euclid, Mogul and Arclight

Euclid is the long-running editor which has been developed and improved to its current user friendly condition. Often described as a 3D version of *Draw*, the tool bar and single view window is a good choice for a package which aims to make visualisation of what you are designing easy.

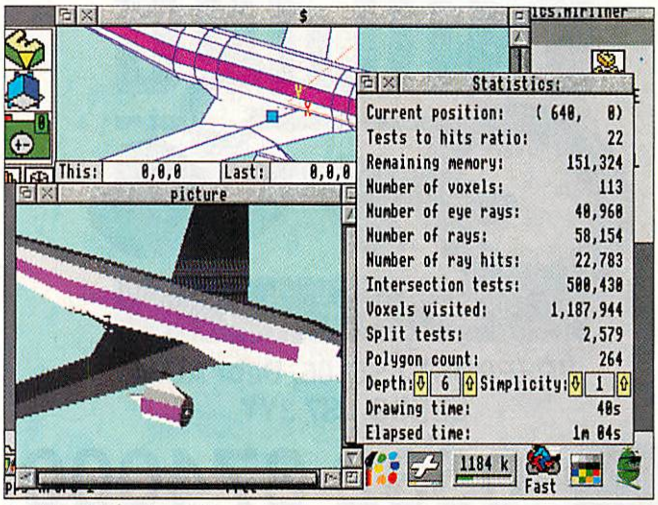
The method of choosing 2D views of what is a 3D design is easy to understand and intuititive, and the ability to spin objects in real time on the desktop is a real boon. Sprite or *Draw* output can be exported from *Euclid*, but the program comes into its own when used with the complementary *Mogul* and *Arclight* packages.

The former is by far the best tool to make animations on the Archimedes, and *Arclight* allows them to be batch ray-traced fairly rapidly.

The quality of the raytraced sprites, as with *Render Bender*, is not great but if you really want to produce animations then the *Euclid* collection of programs is the best choice.

Other suggestions

Perspectives – Although not a product for producing real graphical output, *Perspectives* is perfect in the role of introducing 3D design in education.



Euclid: a 3D version of Draw

Using only a wireframe display to keep the package simple, a user-friendly editor and viewer make the package ideal for school use.

The main aim of the software is to allow ideas of 3D objects to be modelled and viewed in real 3D (with 3D glasses), and in doing so to introduce the principles of 3D design.

As long as only a fairly basic level of detail is required, *Perspectives* is a fine package, but if you want to expand the level of complexity and produce solid filled objects, *Euclid* or *Architech* may be a better choice.

Architech – Although only in the latter stages of production, a preview version of *Architech*, made available for review by Aspex, looks very impressive indeed. On the desktop it looks a bit like an advanced version of *Euclid* but with features for texture mapping, light sourcing and animation all in real time.

Architech offers the ability to design any form of 3D object and then print it out as a net so it can be cut out and assembled, which is ideal for use in education.

Other possibilities include exporting designs to *Spex*, or even modelling architectural designs. The editor is detailed but easy to use and provides an excellent base to take advantage of the fast real-time display modes which are on offer.

In fact the only thing I could fault the program with was its name; are there any Archimedes packages without Archi, Arm or Risc in their title?

A full review of *Architech* and details of all its other uses, which we have no room for here, will appear when the software is finished.

PD raytracers – The budget alternative to costly commercial packages lies in the big range of PD raytracers. Programs like *POVray*, *Rayshade* and the somewhat erroneously named *Quick Ray Tracer* theoretically allow quite detailed pictures to be produced. Ironically the output from some of these programs is of a better quality than *Render Bender II*, but without proper editors, creating decent scenes is about as easy as drawing a bitmap picture from Basic.

If you're interested in starting out in 3D design and rendering, then the PD scene could be the place to try it out before you take the plunge with your hard earned cash.

Designing in 3D through abstract text and geometry entries should not put you off – it gets a lot easier when you go commercial.

PRODUCT DETAILS (all prices ex VAT)

PRODUCT	SUPPLIER	PRICE	TELEPHONE
ArtWorks	Computer Concepts	£169	(0442) 63933
Draw	Acorn	N/A	(0223) 254254
Vector	4Mation	£85	(0271) 25353
Draw+	Public Domain	N/A	
Poster	4Mation	£89	(0271) 25353
Revelation ImagePro	Longman Logotron	£139	(0223) 425558
ProArtisan 2	Clares	£114.89	(0606) 48511
Arcol Desktop	Explan	£50	(0822) 613868
Artisan 2	Clares	£62.71	(0606) 48511
Paint	Acorn	N/A	(0223) 254254
1st Paint	Keyboard Technology	£38	(0509) 610706
Kidpix	ESM	£37.50	(0223) 65445
QPaint	CIS	£49.95	071-226 3340
Architech	Aspex	TBA	(0822) 611060
Perspectives	Techsoft	£45	(08243) 318
Illustionist	Clares	£85.06	(0606) 48511
Render Bender 2	Clares	£85.06	(0606) 48511
Euclid	Oak Solutions	£99.95	(0532) 326992
Mogul	Oak Solutions	£29.95	(0532) 326992
Arclight	Oak Solutions	£59.95	(0532) 326992

n! Brilliant prices! Amazing speed!

	SRP	Our Price
WordWorks	45.93	42.95
FIREWORKZ (Resultz & Wordz together!)	175.08	173.95

SPREADSHEETS

	SRP	Our Price
Eureka 2	139.83	116.35
ProSHEET	49.95	42.35
Resultz	116.33	112.95
FIREWORKZ (Resultz & Wordz together!)	175.08	173.95
Schema	135.00	111.65

DATABASES

	SRP	Our Price
Archivist Pro	45.00	42.95
Datapower	175.08	146.95
DataVision	99.95	84.65
Desktop Database	62.28	52.95
Flexifile	116.33	80.95
Junior Pinpoint	34.08	30.50
Masterfile 3	57.58	50.55
Multistore II	152.69	123.35
Pinpoint	116.33	76.35
S-Base 2 Developer	292.58	263.35
S-Base 2 Developer Plus	445.33	399.95
S-Base 2 Personal	151.58	134.95
The Junior Database	62.28	52.85

Integrated Office Suite

	SRP	Our Price
Almanac v3	85.00	77.95
Office Tools	375.00	339.95
Pipedream 3	92.83	84.65
Pipedream 4	116.33	112.95

ACCOUNTS

	SRP	Our Price
Arcounts Manager	351.33	299.95
Home/Club Accounts	46.94	39.95
Personal Accounts v2	34.95	29.95
Prophet v1.38	199.75	170.45

Business/Drivers/Various

	SRP	Our Price
A1 PROdriver (Add-on)	35.19	31.50
BJ10EX Turbo Driver	57.58	53.95
BJC800 Turbo Driver	57.58	53.95
BJC600 Turbo Driver	57.58	53.95
Bubble Jet Printer Driver	23.44	19.95
Cable News	175.08	150.45
Canon PROdriver	41.13	36.95
Chartwell	29.95	26.95
DeskEdit V2	31.95	29.45
Desktop Office V2	116.33	84.65
Epson Stylus Turbo Driver	57.57	53.95
Equazor	57.57	43.50
Film Maker	79.95	70.50
H.P. Deskjet Colour Driver	17.63	15.95
H.P. Printer Driver (All)	23.44	21.95
H.P. PROdriver (Not OS 2)	57.58	53.95
Image Outliner	92.83	84.65
Impression Business Suppl.	57.58	45.85
Integrex 132 Printer Driver	23.44	21.95
LC200 Colour Sprite Dump	30.60	16.95
Mastering 1st Word Plus	21.90	19.95
Nightsky	79.95	78.75
Oak PCB	117.44	92.95
Presenter GTi	82.19	77.55
Print Shop	25.95	23.50
Shareholder V2	125.00	112.85
Shareholder Professional	195.00	192.75
Showpage	175.07	167.95
Spooler (for Clare's products)	15.00	13.95
Star LC 10 Printer Driver	23.44	19.95
Star/Epson Colour Driver	17.63	14.95

Computer Aided Design

	SRP	Our Price
ARC-PCB	125.00	112.85
ARC-PCB Professional	275.00	249.95
ARC-PCB Schematics	375.00	339.65
CADet	175.08	150.45
Excellon DRILL	75.00	64.65
Kiddicad	52.88	47.50
PowerROUTER for ARC-PCB	195.00	186.85
ProCAD	581.63	462.95
Realtime Solids Modeller	195.00	179.95
SolidCAD	99.95	90.50
SolidTOOLS	275.00	239.75
Worracad	117.44	92.85

LANGUAGES

	SRP	Our Price
Arch. Assembly Language	22.11	19.95
Cambridge Pascal	117.44	92.85
Desktop C (2Mb min)	269.08	211.50
Easy C	57.58	51.95

COMMUNICATIONS

	SRP	Our Price
ArcComm V2	69.33	55.25
Arcterm 7	79.95	69.35
Hearsay 2	88.13	79.95

DTP & ART PACKAGES

	SRP	Our Price
ARCtist	25.95	22.35
Art School	29.95	29.45
Artisan 2	61.95	50.55
Artworks	198.57	145.75
Atelier	99.88	70.50
Desktop Folio	75.20	63.45
Folio for the Archimedes	44.06	37.45
Imagery 2	89.95	76.35
Impression Style	116.32	112.95
Impression Publisher	198.57	159.95
Ovation	116.33	98.75
Poster	-	99.95
PrimeArt	93.94	79.95
Pro Artisan 2	135.00	127.95
QPaint	49.95	44.95
Revelation 2	89.30	87.95
Revelation 2 CD ROM	116.33	115.25
Revelation ImagePro	163.33	149.25

HARDWARE

	SRP	Our Price
A3010 from 1MB to 2MB Memory upgrade	-	39.95
A3000 from 1MB to 2MB Memory upgrade	-	59.95
A3010 from 1MB to 4MB Memory upgrade	-	149.00
A3000 from 1MB to 4MB Memory upgrade	-	151.50
Scanlight Junior 256	233.83	209.95
Scanlight Senior	351.33	315.95
Scanlight Video 256	258.50	234.95

EDUCATIONAL

	SRP	Our Price
10 out of 10 Dinosaurs	25.95	23.50
10 out of 10 Driving Test (Soon)	25.95	23.50
10 out of 10 Maths-Number	25.95	23.50
10 out of 10 Maths-Algebra	25.95	23.50
10 out of 10 English	25.95	23.50
10 out of 10 Early Essentials	25.95	23.50
10 out of 10 French	25.95	23.50
10 out of 10 Junior Essentials	25.95	23.50
10 out of 10 Maths Statistics	25.95	23.50
Adventure Playground	25.99	23.50
An eye for Spelling	41.13	36.95
Ancient Greece	29.38	25.95
Animated Alphabet	-	26.97
Animated Numbers	-	26.97
Arcventure 1 - The Romans	-	37.54
Arcventure 2 - The Egyptians	-	37.54
Arcventure 3 - The Vikings	-	37.54
Astro	35.25	31.95
Aztecs	-	46.94
Badger Trails	-	46.94
Balloons/Zoo	-	35.25
Best Four Adventure	44.06	39.95
Best Four Language	44.06	39.95
Best Four Maths	44.06	39.95
Billy - Bothersome Bully	-	11.69
Bobby the Boastful Bird	-	11.69
Bookstore (Primary)	46.41	41.95
Boys and Girls	-	19.95
Bumper Disc 1	23.95	19.95
Bumper Disc 2	23.95	19.95
Castle Life	52.88	47.50
Castle of Dreams	25.99	23.50
Chameleon	-	44.06
Chatter	-	44.06
Chemistry Superstar	27.03	24.50
Christmas Adventure	25.99	23.50
Christmas Allsorts	-	19.92
Clarence the Clumsy Cat	-	11.69
Coffee (9-15yrs)	34.99	31.50
Concept Designer Pack	28.20	25.50
Connections	-	34.02
Control Logo	29.38	26.50
Craftshop 1	-	23.44
Craftshop 2	-	23.44
Crossword + (8-Adult)	19.95	16.95
Derek's Dopey Dinosaur	-	11.69
Desktop Folio	75.20	67.95
Dktp Folio W. War 2 Pk	26.43	23.95
Dktp Folio Christmas Pk	26.43	23.95
Dktp Folio Editors Pk	26.43	23.95
Dktp Folio Space Pk	26.43	23.95
Dktp Folio Maths Pk	26.43	23.95
Doris the Dotty Dog	-	11.69
Educational 1	-	19.95
Edwina's Energetic Elephant	-	11.69
Egypt Extras - Genesis	11.68	10.50
Farmer Giles 2	20.39	14.95
First Logo	28.20	24.95
First Numbers	-	19.95
First Steps Collection	-	44.00
First Words	-	19.95
First Words & Pictures	27.03	22.95
Folio for Archimedes	44.06	41.95
Frontier 2000	93.94	89.95
Fun & Games (5-7yrs)	19.95	16.95
Fun School 3 Series (Each)	24.99	21.95



	SRP	Our Price
Fun School 4 Series (Each)	24.99	21.95
Fun With Numbers	-	19.95
Gemini	23.44	19.95
Geordie Racer	28.20	25.50
Giant Killer	23.50	21.50
Giant Killer Support Disc	17.63	15.95
Gordon's Groovy Granny	-	11.69
Granny's Garden	-	28.79
Graph-It	-	23.44
Hilighter	-	41.07
House of Numbers (6-13yrs)	27.03	22.95
Imagine V2 (needs 2Mb)	52.88	47.50
Insight	81.08	71.95
Investigating Maths (9-13yrs)	44.06	39.95
Jiglet	-	23.44
Jigsaw	-	23.44
Keyboard Player	23.50	21.15
Kid Pix	44.06	39.95
Landmarks - Each1	28.20	24.95
Let's Spell 4 Pack	-	24.95
Let's Play Series (Each)	-	19.95
Letters & Pictures (6-8yrs)	23.50	19.95
Lexicon French	39.00	36.95
Lexicon German	39.00	36.95
Lexicon Russian	50.00	45.95
Linkword French	46.95	39.95
Linkword German	46.95	39.95
Linkword Spanish	46.95	39.95
Little Red Riding Hood	17.63	14.95
Logotron Logo	81.08	71.95
Lots More Fun & Games	22.95	19.50
Lucy the little Liar	-	11.69
Make 'n' Match	-	9.95
Magpie	69.33	59.95
Mapping Skills	34.66	31.95
Maps & Landscapes (9-14yrs)	27.03	22.95
Maths Pack 1 (5-7yrs)	12.95	10.95
Mega Maths (A-Level)	25.22	21.95
Mental Maths (5-16yrs)	20.39	17.35
Micro English (8yrs - GCSE)	25.22	21.95
Micro French (8yrs - GCSE)	25.22	21.95
Micro German (8yrs - GCSE)	25.22	21.95
Micro Maths (11yrs - GCSE)	25.22	21.95
Micro Science (8yrs - GCSE)	25.22	21.95
Micro Spanish	25.22	21.95
Movaword	23.50	19.95
My First Words	23.44	19.95
Navigator	52.88	47.50
Newton	22.33	19.95
Nightsky	79.95	74.95
Noddy's Big Adventure (Soon)	25.99	23.99
Noddy's Playtime Requires OS 3.1 & 2MB	25.99	23.99
Noot	-	52.88
Numbers in the Nat. Cur.	44.06	39.95
Numbers/Pictures (4-6+yrs)	23.50	19.95
Number Zoo	16.45	14.85
Numerator	45.83	39.95
Ollie Octopus Sketchpad	17.99	15.50
Pendown 2	63.45	57.95
Pendown Etoiles	63.45	57.95
Pinpoint	116.33	99.95
Pirate	27.03	22.95
Podd	32.31	29.95
Polyominoes	35.25	29.95
Poster	-	104.58
Primary Maths Course (3-12yrs)	25.22	21.95
Primary Nature	70.50	63.50
PrimeArt	93.94	79.95
Puncman 1&2 (7-13+)	23.50	19.95
Puncman 3&4 (8-14+)	23.50	19.95
Puncman 5, 6, & 7 (8-15+)	23.50	19.95
Punctuate	17.88	17.50
Reading Writing Course	25.22	21.95
Recall	-	46.94
Reversals	23.50	19.95
RoboLogo	49.95	44.95
Round World Yacht Race	34.99	29.95
Screen Turtle	52.88	47.50
Search & Rescue (9-15yrs)	34.95	29.95
Seelinks - Ourselves	34.66	31.95
Seelinks - Pondwatch	44.06	41.95
Seelinks - Tourism	67.56	64.95
Seelinks - Transport	44.06	41.95
Selladore Tales	-	29.32
Sherston Naughty Stories Pk 1	-	58.46
Sherston Naughty Stories Pk 2	-	58.46
Shylock Gnomes	22.33	19.95
Skyhunter	28.20	25.50
Smudge the Spaniel	25.99	21.95
Snippet	-	44.06
Spelling Week By Wk (6-14)	27.03	22.95
Splash	-	23.44
Sports Day	26.44	23.75
Sports People	26.44	23.75
Stig of the Dump	-	28.14
The Farm	-	23.47
Time Traveller - Britain 1930's	38.19	34.95
.. And Resource Pack	67.50	59.95
T. Trav. Exp. Trade & Ind.	46.41	41.75
.. And Resource Pack	69.85	62.95
T. Trav. Make your Own	44.06	39.95
T. Trav. Making of the UK	46.41	41.95
.. And Resource Pack	69.85	62.95
T. Trav. Medieval Realms	46.41	41.75
.. And Resource Pack	69.85	62.95
Time Traveller - Victorians	38.19	34.95
.. And Resource Pack	67.50	59.95
Tasmin's Terrible Tantrum	-	11.69
Terry's Tricky Trainers	-	11.69
The Art Machine Pack 1 (9+)	46.94	39.95
The Art Machine Pack 2 (9+)	35.19	29.95
The Crystal Rain Forest	-	46.94
The Puddle & The Wardrobe	35.19	29.95
The Worst Witch	-	31.67
Through the Dragon's Eye	28.20	24.95
Tina's Terrible Trumpet	-	11.69
TinyLogo/Tiny Draw (4-9yrs)	35.19	29.95
Tiny Puzzle	29.38	26.50
Toby - Troublesome Tractor	-	11.69
Topographer	79.95	71.95
Touch Type	51.04	45.95
Turbo Type	24.95	21.95
TV Fun & Games	22.95	18.95
Viewpoints	-	46.94
Weatherman	9.95	8.50
Welsh Podd	46.41	41.95
Word Bank	23.50	21.50
World Map Study	79.31	71.50
Worldmaker	67.56	59.95
Words & Pictures	27.03	22.95
Yes Chancellor 2	27.03	22.95

Books/Videos/Tutorials

	SRP	Our Price
Artworks Made Easy	14.95	13.95

Don't know which to choose? Ask for our Educational catalogue for descriptions

Vantage One Direct

Send for your FREE catalogue NOW!

Vantage One Direct specializes in mail order for Acorn Computer users.
Put yourself on THE mailing list for
* Free quarterly catalogue. Includes details of new releases, product descriptions and review comments helping you to achieve the best buys around.
* Exclusive special offers, often including extra discounts!
* Remember, what you see is what you pay – VAT and carriage are both included! You don't even pay to send us your order!

(AU34)

Items	Qty	Price
	TOTAL	

Name

Address

Postcode

I enclose a cheque/Postal Order payable to Vantage One Direct ☐

Please debit my Access/Visa card

Expiry Date /9

I do not wish to place an order at this time, but please send me your FREE catalogue. (Don't forget to fill in your name and address above!)

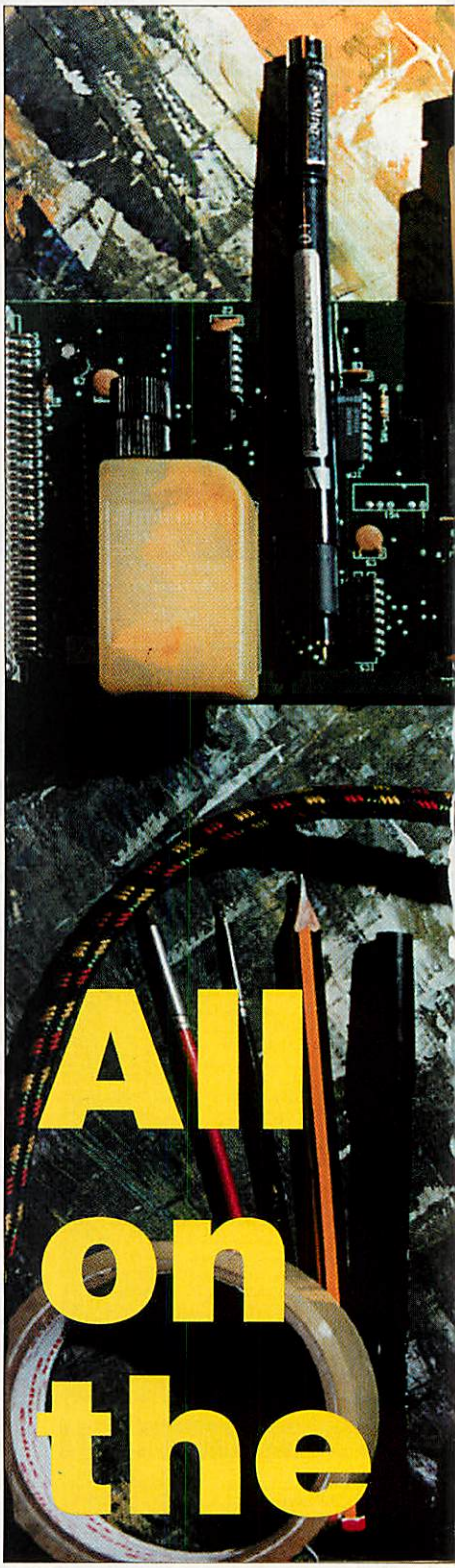
Archimedes Series ☐

BBC B/B+/Master 128/ Master Cpct or Electron ☐

If you don't want to cut the magazine just take a photocopy or write on a plain piece of paper the items you would like quoting your name, address and payment details

Prices are correct at the time of going to press, but are subject to change without notice; E&OE. *Free or inclusive carriage is applicable to the UK only but excludes packages over 2KG in weight to Scottish Highlands and Ireland

ng Inc VAT & carriage!



Jack Kreindler explores the confusing world of graphics enhancer cards

In recent years the size and quality of desktop displays has been regarded with an ever increasing importance. In this case size is everything.

Colour and resolution capabilities never fail to appear in the specification lists for off-the-shelf PC systems and dozens of companies have emerged to meet the display desires of the 'power user'.

Acorn machines, though technologically ahead of any other platform before the emergence of the VGA standard in 1987, now lag well behind the competition in the display stakes. To understand the reasons behind this, you have to understand the way in which Acorns generate their screen displays.

Video displays

Acorn display systems use the central processing unit, the Arm, to write all the video information to the main memory (Ram). The job of translating this pixel information into a form that the display device can understand is performed by the Video Controller or VIDC chip.

The video information in main memory, read by the VIDC at the same frequency as the display refresh rate (about sixty times each second), is governed by the Memory Controller or MEMC chip.

From the VIDC the picture eventually finds its way onto your monitor screen. So the Arm sends video data to main memory, then the MEMC allows the data from main memory to be read by the VIDC which paints the screen display. Simple really.

But the major drawback of this technique is that every time the MEMC translocates the video data, it has to freeze the Arm processor. Stopping the Arm slows the computer down which is evident when the Arm is loaded with difficult tasks, like complex graphics redraws in high resolution modes.

The size or resolution of the display is limited to the amount of main memory that the operating system reserves for screen data – this 'screen buffer' is limited to 480K by Risc OS.

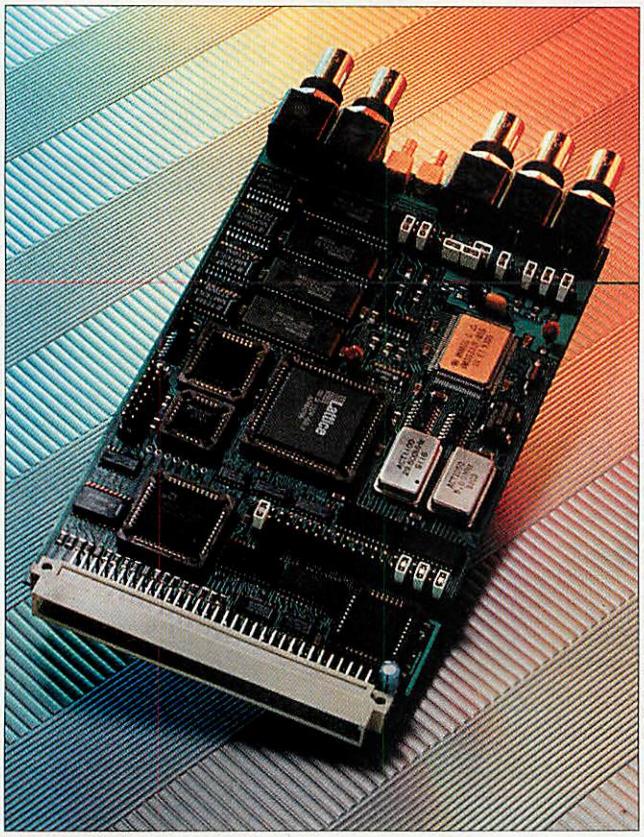
Generating screens any larger than this is not feasible, both in terms of the reduced computing power and also the restricted performance of the video chip. An additional problem is that writing the video data to main memory reduces the amount of Ram available for actual applications.

For a large proportion of Acorn machines, like the ones used in schools and for low-end use in homes, the standard 'high res' modes of 28 and 31 are more than adequate, and are as much as most 14in monitors are comfortable with.

But in the past two years there has been a rapid proliferation in the number of higher-end users and professionals using the Acorn platform, and for those designers and publishers who eat and sleep in front of their screens, 800x600 in 16 colours just isn't enough.

PCs use dedicated graphics boards which generate and process their own video data. £100 will buy you display performance to better an A5000, and for those who need that little bit extra, cards such as the Diamond Viper, Orchid Celcius and Hercules Graphite Pro have a level of specifications almost as absurd as their names.

These upgrades will satisfy the most demanding user and professional at a price that even an enthusiast can afford.

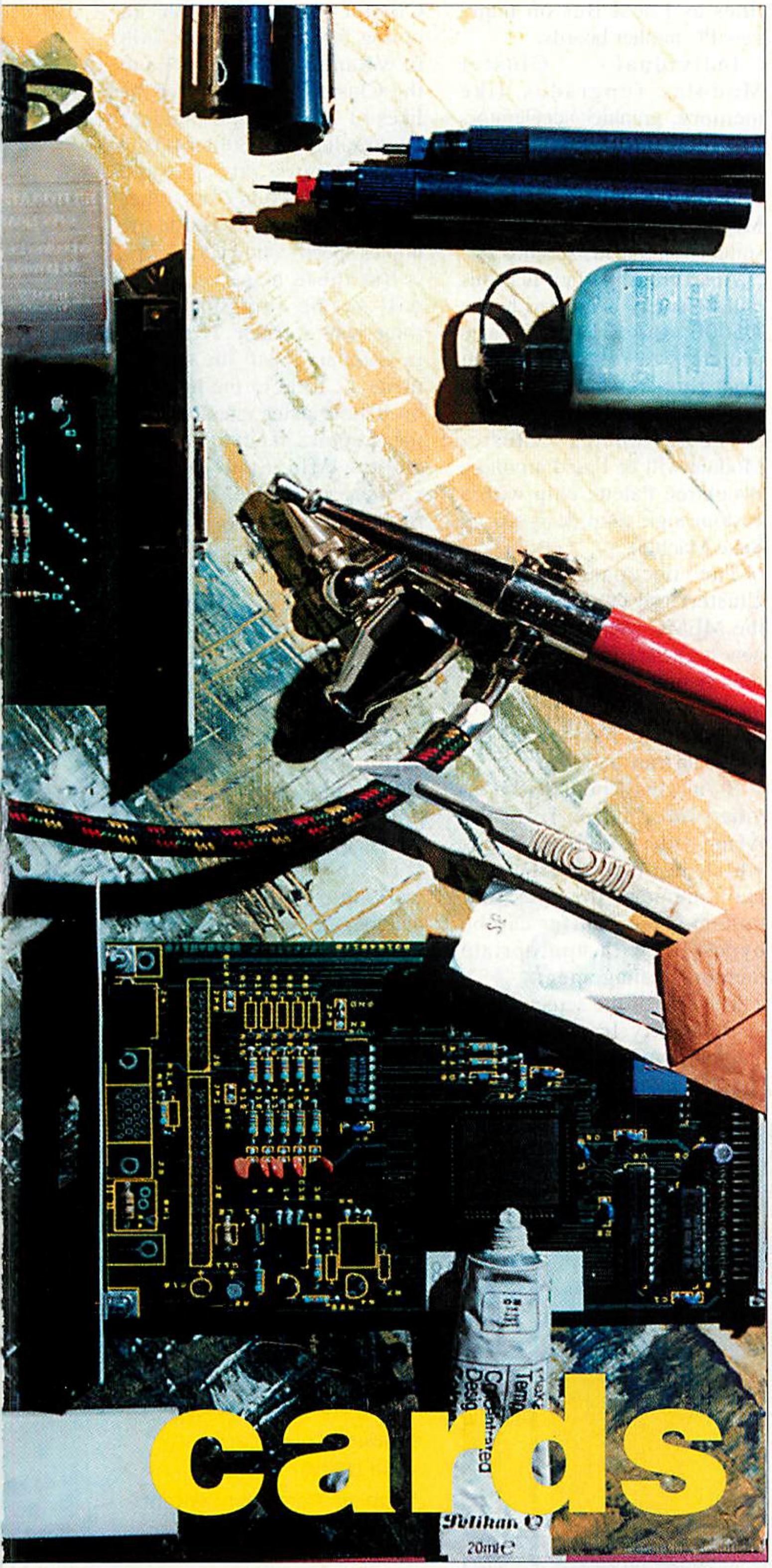

State Machine's ColourBurst Card

Acorn upgrades

In a delayed response to the trends and demands of the computer market, graphics upgrades have also been developed for the Acorn platform. Though they are not identical in principle to the PC boards, as they are still limited by the 480K screen buffer, their intention is the same: higher resolutions and refresh rates with more speed and colours.

They work by taking the video data from main memory and storing it in their own Video Ram (VRam) which is then accessed by custom video chips, so bypassing the VIDC.

The MEMC is still required to halt the Arm as it transfers data from the main memory to the graphics card, but it is required to do this at a vastly reduced rate to normal.



The key characteristic of the VRam 'frame store' on a graphics card is that it can be written to, and read from, simultaneously, so even though it is given the video data at a rate as low as 12Hz, it can be read at a far higher frequency, supporting screen refresh rates equal to and above that which standard Acorn hardware can manage. Upgrades like Computer Concepts' ColourCard and the range from State Machine use video chips superior in performance to the VIDC10 found in the present generation of Acorn machines. Chips such as the Inmos G335 can support much higher resolutions and refresh rates and also wider palettes than VIDC10. With access to 24-bit palettes, chips like the G335 and the much talked about VIDC20 can generate 24-bit colour data on screen.

This equates to a potential of 2-to-the-power-of-24 colours on screen, or 16,776,960 more colours than in an 8-bit (256 colour) mode like mode 28 – not that any monitor could display, or human see, so many colours anyway.

But confined within the bounds of a 480K screen buffer, the graphics cards cannot make full use of the 24-bit modes. Why? Well in a 24-bit colour mode, every pixel on screen needs 4 bytes of data, so with 480K available you can only have a screen mode of around 384x288 pixels, rendering the mode useless for DTP or design purposes.

Until the 480K screen buffer is lifted, which in the pipeline, 24-bit screen modes are unlikely to be seen.

15-bit modes are more economical, giving 2-to-the-power-of-15 or 32,768 colours on screen. The latest evolution of CC's ColourCard already supports 15-bit desktops (using new ColourTrans and SpriteExtend modules).

Quite useable 576x424 (square pixel) and 800x304 (rectangular pixel) modes are available and the State Machine cards are expected to follow suit with similar 32,768 colour desktop support.

These fully desktop-compliant modes do make a significant difference to the appearance of images in true colour applications such as vector graphics packages and desktop publishing programs (like *Impression*) that can support the import of 24-bit graphics.

In terms of resolution, all of the graphics accelerators offer mode 32 (a 256-colour version of mode 31), 1024x768 in 16 colours, 1152x848 in 16 colours and 1440x1280 in 4 colours, monitor permitting. All colours are selectable from 16.7 million hues.

It should be noted that you would need a 20in monitor with a 0.28 dot pitch in order for there to be all the pixels at 1440x1280, so these enormous resolutions are only theoretical for most monitors.

Other than dot pitch the other factor that limits the quality of higher resolution modes is the standard 15-pin video cable.

With a 15-pin cable the pixel quality tends to deteriorate after about 1152x848, so any serious user should look at investing in both a monitor and a graphics card with separate video outputs for red, green, blue and the vertical and horizontal syncs.

Only the State Machine ColourBurst card outputs through these broadcast quality connectors.

Choosing a card

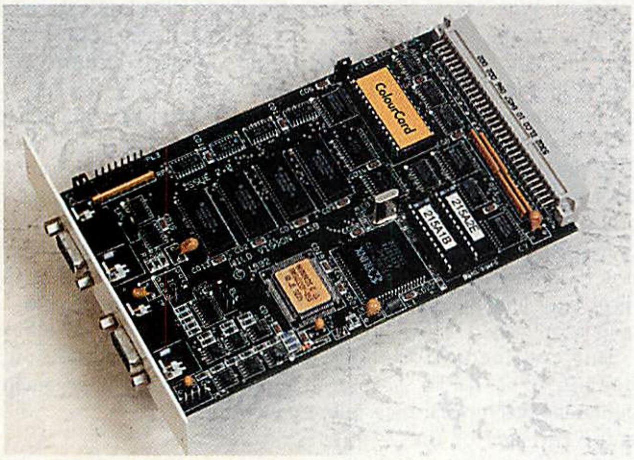
So which is the best upgrade for you? ColourCard Gold is a good choice for those who want 32,000 colours on the desktop now, though State Machine is unlikey to be slow about implementing the small changes needed to make its G16 and ColourBurst cards do the same thing.

In using a ColourCard and then upgrading to ColourCard Gold I have had very few complaints; the cards are incredibly easy to install and the mode selection software is fast and simple to use, as is the strikingly similar State Machine software.

With the ColourCard you have the option of choosing between ColourCard modes and normal VIDC modes, which is quite useful when you want to play games, or play film which looks terrible at an actual screen refresh rate of 12 frames per second. The latest versions can optionally refresh the frame store at 24MHz.

State Machine's cards use a perfect emulation of the standard modes instead, and its cards have a 25Hz frame store update for all modes, with a 50MHz option for modes 0 to 15.

In terms of compatibility with properly written software, none of the currently marketed cards has any problems at all, though the Computer Concepts card does come with software that have been tailored to get the most out of their graphics card using applications such as *ArtWorks* and the latest versions of *Impression*. The only significant difference is in the people that make the hardware. CC is a big company and State Machine is a specialist graphics company, so there's no



Computer Concepts' ColourCard Gold

end to the list of pros and cons of buying from either.

Whatever you pick, you are bound to get a good deal. I can only say that I don't know how I ever survived all those hours squinting and scrolling around mode 27, having been spoilt with the larger modes which are infinitely more usable and easier on the eyes, and give the machine a noticeable increase in performance during graphically related tasks.

For those who want the added advantage of having 1Mb of VRam (though only 1Mb screen previews are allowed), and the ability to encode the video output to either PAL or NSTC standards through the 5-way connectors, the ColourBurst is the only choice.

It is a superior board to the others but does cost over £400. Anybody who is planning to move to a good quality 17in (or larger) monitor should definitely consider buying this card.

The ClusterCard

So what of the future? Well apart from the speculative graphics capabilities of the new generation of Acorns, which I suspect will be very high indeed, the next thing to look forward to is State Machine's ClusterCard. The ClusterCard is an upgrade concept following the same lines as Local Bus on many new PC mother boards.

Individual Cluster Modules (upgrades like memory, graphics accelerators or video interfaces) can be added to the main ClusterCard central HUB, which sits in the MEMC sockets of the latest (or suitably upgraded) A5000s.

Apart from the fact that this will be solely dedicated to the A5000, the ClusterCard promises to revolutionise at least this Acorn machine in graphics performance.

The Graphics Cluster Module will be based around a Brooktree Palette chip with a custom logic chip designed by State Machine.

The occupation of the ClusterCard central HUB in the MEMC socket allows the new hardware to take memory information from Arm to main memory or Video Memory in the graphics upgrade, at very high data transfer rates.

By making Risc OS send all video information from the Arm into Video Ram, which is discrete from the main memory, the operating system screen buffer can be bypassed, with appropriate memory management.

The size of the screen mode is then only limited to the amount of VRam on board the Cluster Module. With an option for either 1Mb or 2Mb of VRam, or 4Mb of DRam, the ClusterCard will offer the likes of 24-bit colour desktops at a resolution of 800x600, and 256 colours at a huge 1600x1200 pixels (four times the size of mode 31) for the higher specification card.

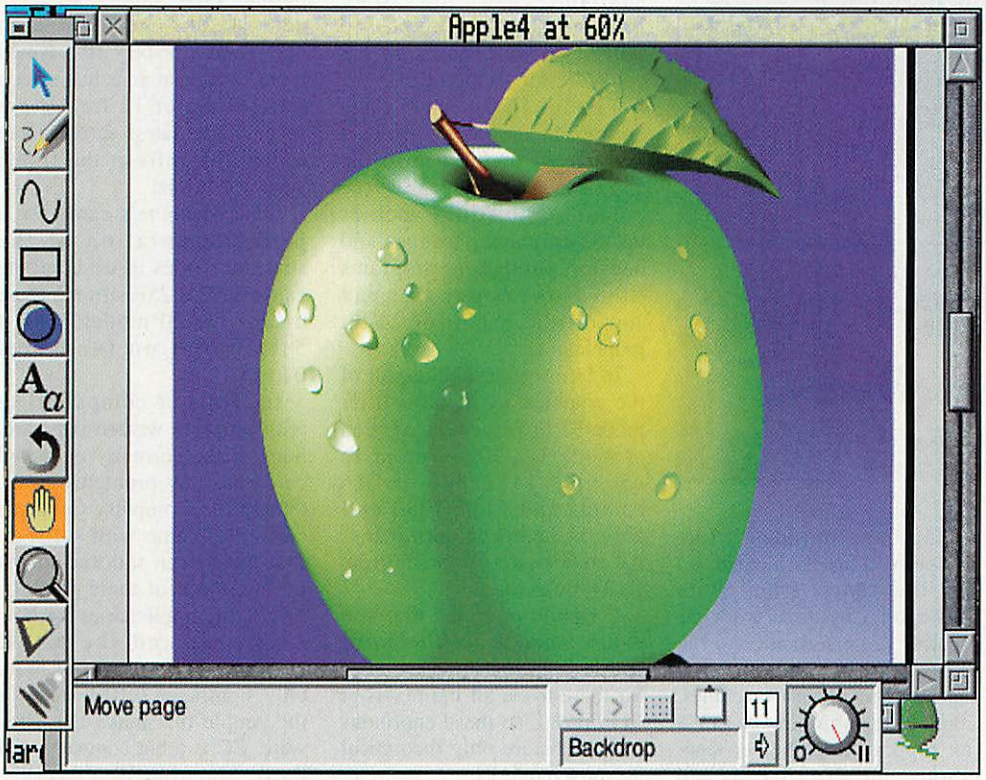
But these massive modes will not be sluggish in the same way as mode 21 may be in comparison to the smaller mode 12. Due to the high 32-bit data transfer rates between the graphics module's VRam and the Arm, State Machine says even the highest resolution modes will run at near to mode 0 band width.

Using separate VRam which doesn't interfere with application memory and with its ability to manage up to 16Mb of Ram in total, the ClusterCard could transform the A5000 into a serious graphics machine, with possibly as good a display potential as the next Acorn series equipped with VIDC20s.

If you spend much time working on graphics or DTP, the upgrades currently available are a strong recommendation and a must for any user at a higher level than this.

The cards have, to a certain extent, enabled Acorn to be described, once again, as a powerful graphics platform.

As for the future, I have a feeling that with the massive demand for multimedia workstations, Acorn intends to make their new machines not only contenders, but perhaps leaders in screen display capabilities once again.



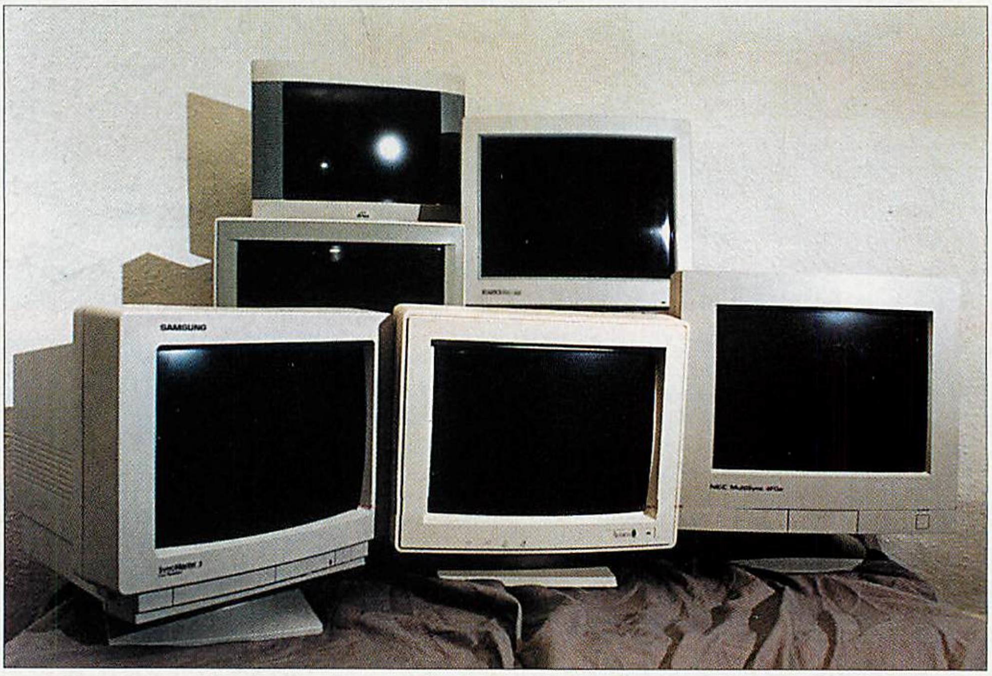
15 bit-per-pixel desktops are now possible

Product details

Product: ColourCard Gold (£249)
Supplier: Computer Concepts
Tel: (0442) 63933

Products: Colour Burst (£399), PAL Encoder (£99), ClusterCard HUB (£185), 1Mb VRam Graphics Module(£249), 2Mb VRam Graphics Module (£349), 4Mb DRam Module (£195)
Supplier: State Machine
Tel: (0582) 483377

All prices ex VAT



Size is not Everything

Choosing the right monitor is vital if you are to make the most of your graphics system. Ian Burley looks at the options

Which monitor display is the best for your needs? That's a tremendously difficult question to answer because of the enormous variation in graphical display options available to Archimedes users.

Over forty different screen modes are supported by default in Risc OS 3.1, and as the VIDC video controller used by Acorn is very easy to program, there are literally hundreds of third-party screen modes available.

If you need to stretch your machine's display capability beyond its standard hardware abilities, VIDC Enhancers and graphics accelerator cards, offering even more and bigger screen modes, are now available from a number of third parties; these are looked at in detail on page 40.

All these display options impose various constraints on the type of monitor hardware which would be suitable for your needs. For example, if you want to be able to play games on your machine, you will need a monitor which can display standard resolution screen modes like mode 12 (640x256 pixels in 16 colours).

Serious DTP would mean a larger display which can cope with higher resolution modes. There is plenty of choice out there, so here is a guide to choosing the right monitor, plus a look at six typical examples of what's available.

Monitor types

The most basic types of monitor available for Acorn computers are either composite video or standard resolution RGB colour units. These can only be used with low resolution screen modes, typically mode 12, which don't offer more than 256 or so pixels of vertical resolution.

System font text looks fine in these modes but Risc OS outline fonts don't work very well, especially in small point sizes. Most up-to-date applications use outline fonts, so for many users the next category of monitor is either a must or something you have to save up for.

If you can afford it, go for a true multiple-frequency scanning, high resolution monitor of some description. These used to be very expensive, but SVGA monitors produced for the PC-compatible market are now quite cheap and a good compromise.

SVGA monitors can be used with little or no modification on the latest generation Acorns (A5000, A3010, A3020, A4000, A4) but usually can't work with standard resolution modes, which rules out games software and a lot of educational packages.

SVGA monitors are also compatible with older Archimedes computers when fitted with a hardware modification called a VIDC Enhancer, such as those available from Risc Developments or Watford.

This is a simple device which can drive the computer's VIDC video chip faster to feed the monitor a higher scanning frequency for higher resolution screen modes. Alternatively you can fit a colour graphics accelerator card like those from State Machine or Computer Concepts (see page 40). Another point to remember is that old machines have 9-pin monitor sockets, so you will need an adaptor to connect a 15-pin monitor like an SVGA; suitable adaptors cost around £10.

SVGA monitors are limited in their scanning frequency ranges, so an even better but more expensive choice is a general multiscan monitor. Some of these can cope with standard modes as well as the very highest resolution modes.

Up-market multiscan monitors have a lot of neat features like microprocessor-controlled digital picture controls, preset memories and automatic re-sizing and positioning.

Another trendy feature is screen life-prolonging and power-conserving suspend mode, which involves the monitor switching the tube off after a period of screen inactivity.

The monitor switches back on as soon as something happens on screen again; ironically, screen saver programs prevent suspend modes from working! For energy saving features, look out for mentions of EPA Energy Star compliance.

Three main types of CRT tube are currently available; a conventional CRT which has a moderately curved screen, FST displays with a markedly less curved display and Trinitron tubes which have a low curvature 'cylindrical' aspect screen and a special electron gun to minimise colour alignment problems.

These days conventional CRTs are usually only found in smaller sizes, up to around 14in or 17in monitors; flatter screen monitors are much more desirable as they introduce a lot less distortion.

Whether FST is better than Trinitron or vice-versa is a matter of opinion; some say that for colour and brightness, Trinitron has the edge, while FST wins on focus sharpness.

Other features to check for when buying a monitor include the maximum frequency ranges supported, screen dot pitch size and adoption of low radiation emission and anti-static measures. The higher the

video bandwidth of a monitor, in MHz, the sharper it can define individual pixels so the better quality it should be.

Also, the higher the horizontal scanning frequency, the more pixels can be defined across the screen. There are a number of radiation emission regulations, but the most often quoted term is the tough Swedish MPRII standard.

Anti-static monitors require a lot less cleaning as they don't attract the dust. Also, check to see if a monitor you are considering has an anti-glare/reflection finish to the screen surface – a good modern monitor will not require an additional screen filter.

When checking for high resolution specifications, remember that interlaced screen modes will be flickery and uncomfortable to view, and that non-interlaced displays are much better.

14in: Acorn AKF50

After suffering a poor reputation through unreliability, Acorn has now replaced its original budget-priced AKF18 multiscan monitor.

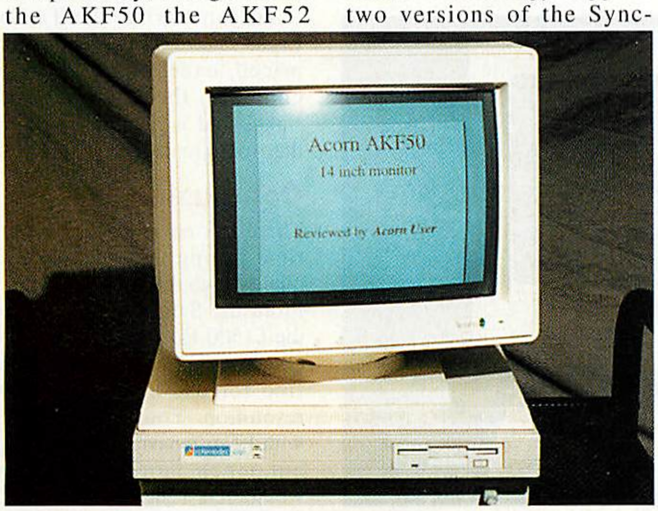
Two brand new models, both designed and manufactured for Acorn by Microvitec, form the replacement range: the AKF50 and AKF52. Here we look at the AKF50, which has a finer screen dot pitch (0.28mm) compared to the cheaper AKF52 (0.42mm).

Otherwise the two models have an identical physical appearance and the same user controls and display mode compatibility, though unlike the AKF50 the AKF52 isn't MPRII low radiations compliant. The main feature of the AKF50/52 is combined compatibility with standard resolution as well as SVGA modes up to 800x600 pixels. This is important for schools as it is increasingly difficult to obtain third party multiscan monitors which cater for standard resolution modes.

Only a minimum selection of picture adjustment controls are provided: height, left/right, brightness and contrast. In practice this isn't a great disadvantage as the monitor was accurately set up for use with Acorn modes, though some judicious twiddling of the height control is required to re-size the picture when changing between multiscan and standard resolution modes.

Sharpness is good, but our sample exhibited a rather cool colour cast compared to the other monitors reviewed. A larger margin than average is left unused around the picture area. Generous lengths of power and video lead are provided, but neither is removable from the monitor.

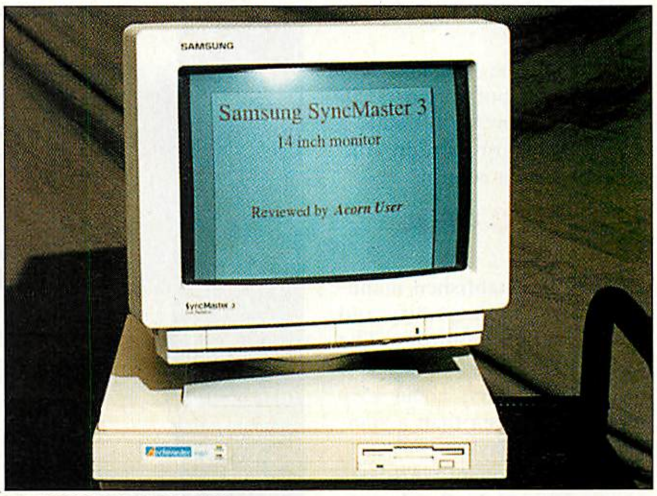
Overall, the AKF50 is a presentable and solid monitor without any frills or basic compatibility problems. There are better monitors for less money, but the Acorn brand and support is reassuring to many customers, like schools.



ACORN AKF50

14in: Castle Technology Samsung SyncMaster 3

Castle Technology supplies two versions of the SyncMaster 3 and we tested the cheaper CVM4967T. This is a fairly typical, well-presented, affordable 14in SVGA monitor with a 0.28mm dot pitch which works happily up to 800x600 pixels.



SAMSUNG SYNCMASTER 3

Our example would not sync with the CC ColourCard Gold at 1024x768, but we loaned the monitor to CC, who promptly tuned their modes module specifically for the Samsung. We're pleased to report everything now works very well and Castle Technology is now offering the two as a bundled package.

MPRII low radiation compliance is standard, the useful range of analogue picture controls are well labelled and are easy to access on the front of the monitor. Both the video cable and power lead are removable. Picture quality is very good, with even coverage, good sharpness and deep colours. Slight evidence of vertical misconvergence was noticed on the left-hand edge of the display.

The SyncMaster 3 needs a VIDC Enhancer or a graphics accelerator card to work with older machines and will only display the usual selection of SVGA screen modes; basically these are 640x480 and 800x600, though some oblong pixel pseudo-modes up to 1600x600 will also work.

As long as you are content to use just SVGA-compatible modes up to a maximum of 800x600 resolution, the SyncMaster 3 is a very cost-effective monitor. Castle Technology sells an optional VIDC enhancer and cable adaptor (£29 and £8 + VAT respectively) for users of older generation Archimedes models.

14in: Aries A-Scan Pro

Watford Electronics offers a wide range of inexpensive monitors under its Aries brand name. We wanted to review the very aggressively priced 15in Aries 6000 (£299) but according to Watford, demand has outstripped supply, so we had to make do with the 14in AlphaScan Pro, the next model down at £249.

The case design is very smart, with four picture control knobs on either side of a large illuminated perspex on/off push button.

The screen is treated to reduce reflections, has a 0.28mm dot pitch, and is commendably sharp with good colour saturation. Both pincushion and trapezium distortion controls are provided and we were able to straighten up the screen to an acceptable standard. Very little of the screen area is wasted too.

The A-Scan has a wider sync capability than the Samsung and will operate at 1024x768 pixels without interlacing. At the other end, the monitor will also sync to standard Acorn modes like mode 12, though there isn't quite enough adjustment available to achieve a normal aspect ratio and the resulting screen area is quite small.

Nevertheless, it's usable enough for emergencies when you need to use software not designed for higher resolution modes. Both the RGB and

power cables are fixed to the monitor.

For £249, the A-Scan is very good value, but for just £50 extra the 15in A6000 adds a slightly larger screen and microprocessor control.

15in: NEC 4FGe IPM

NEC is an established manufacturer of high quality and rather stylish monitors. The 4FGe IPM is a 15in model so it theoretically offers about 15% more screen area than a standard 14in display.

At first I thought we'd been sent a 14in unit after I measured the screen diagonal to be 13.8in, but according to NEC the 4FGe definitely has a 15in tube.

It would appear that measurements can be deceiving; NEC uses an FST tube in the 4FGe and this means there is more actual visible area in the display over a measured diagonal than a comparable conventional, and so more curved, tube.

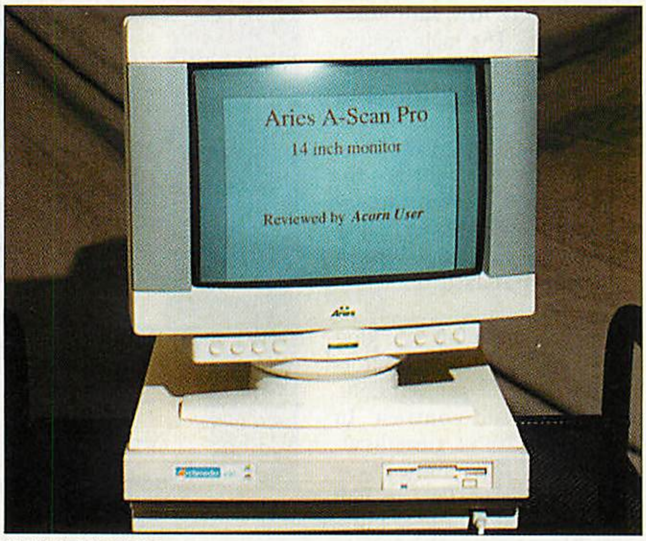
In the end the NEC gets the benefit of the doubt; the picture 'feels' bigger when compared side by side with a conventional 14in display, even if the measurements indicate otherwise.

It's possible to size the picture so it goes right to the screen bezel edges leaving no black border at all. Picture quality is rather unusual, with soft, rather subtle colours – good for graphics but not so good for monochrome work.

Digital controls are featured on the 4FGe, but I preferred the Taxan and Eizo arrangement which avoids twin function buttons. The 4FGe is supposed to remember picture settings automatically after 3 seconds but didn't always appear to with our machine.

NEC explained that the monitor can be confused into thinking different screen modes are actually the same, and this is apparently less of a problem with PCs. The RGB cable is permanently fixed to the monitor.

The 4FGe, like all NEC monitors, is superbly styled – it looks just as neat from the rear as from the front. In the end I still find myself asking if this 15in monitor is a big



ARIES A-SCAN PRO

enough step up from the standard 14in format, and it's also quite pricey at £699, though this does include a power-saving facility. NEC has a good reputation and reliability won't be a worry.

17in: Eizo T560i

There aren't many 17in monitors better than the Eizo T560i-T. It has everything you could possibly want, but at a price: a cool £1500.

The features list is impressive: an anti-static reflection-free flat screen Trinitron tube, 0.26mm dot pitch, an 82KHz horizontal line rate which means it will cope with resolutions exceeding 1280 pixels across, automatic display sensing and power control, comprehensive radiation suppression, and so on.

Picture quality is superlative: it's very sharp, rock steady and colour balance is excellent. One slightly noticeable point is that if you straighten the extreme sides of the display using the pincushion control, pincushion distortion remains slightly evident towards the centre of the screen.

This is possibly a trick of the Trinitron screen. A couple of extremely faint horizontal lines, one in the top third and one in the bottom third of the display, are classic Trinitron traits caused by very fine wires used to locate a delicate fine wire aperture grill inside the tube.

That said, the display was still the best of the bunch tested here and a cheaper FST version, the F560i-W, is likely to be an excellent alternative.

BNC picture connectors are provided for ultra-high resolution display cards as well as a standard 15-pin SVGA connector. The T560i is a luxury monitor, but so is its price tag. *Acorn User's* graphics editor Jack Kreindler is saving hard to buy one: what more



NEC 4FGe IPM

recommendation do you need?

17in: Taxan Ergovision 865LR-Plus

At nearly half the price of the Eizo T560i-T, it's not surprising the Taxan 865LR-Plus has a slightly lower specification, but that said, it's a superb monitor for the money.

You get a 0.28 dot pitch, 17in FST display which is largely reflection free. Sharpness is excellent and colour quality is very good too.

Picture controls on the Taxan are completely digital, bar the brightness and contrast knobs, which can be recessed when not in use. Presets are automatically programmed but there is none of the mode confusion exhibited by the NEC 4FGe.

1152x848 pixels in 16 colours using the Computer Concepts ColourCard is handled well by the 865 Plus LR.

In high-res modes it's possible to size the picture almost to the screen edge, but not as close as the Eizo. Taxan calls the 865 Plus LR an Ergovision monitor, which means it has power saving suspend modes like the NEC and Eizo monitors in this review.

In fact three power modes are available: in normal use 135 watts of power is consumed, in standby-mode this is reduced to 15 watts and in turn this falls to 5 watts in suspend mode.

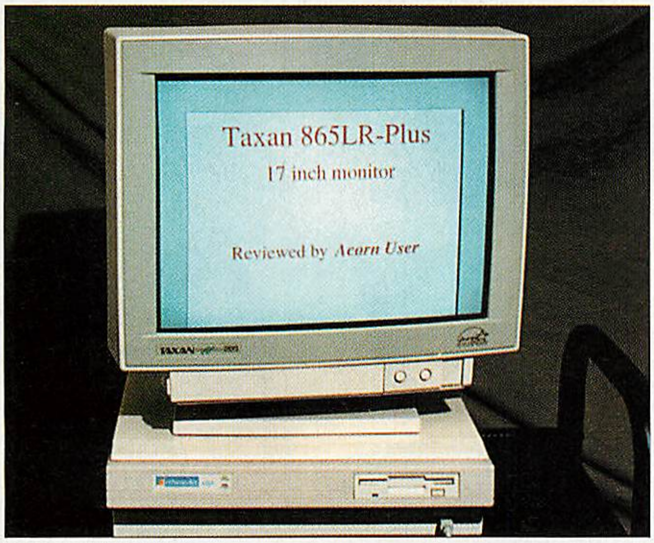
The 865 Plus LR also complies with VESA DPMS signalling which is a standard for controlling the monitor's power from the computer.

To summarise, the Taxan ErgoVision is a competitively priced, excellent mid-range choice in the 17in monitor stakes and is ideally suited to the Acorn machines.

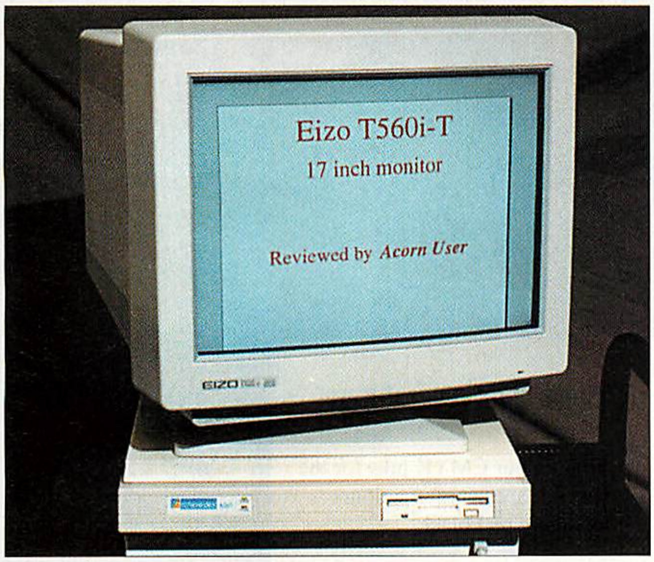
Conclusion

There has never been a better time to upgrade to a decent quality high resolution monitor. From the Samsung at £199 to the £1500 Eizo tested here, the choice is huge. A 14in unit is fine for use up to 800x600 resolution. You can get away with 1024x768 on a 15in monitor, but much more preferable would be a 17in unit. Whatever you choose, make sure you're

able to try a prospective purchase out on your machine or one very similar, and if you have an older technology machine, make sure its video circuitry has the VIDC enhancer or graphics card necessary to drive the monitor.



TAXAN 865LR-PLUS



EIZO T560i-T

Jargon box

CGA: Colour Graphics Array. Early colour display standard, used by the first IBM PCs. Generally either 320x200 or 640x200 pixels in up to 16 colours. In the Acorn world., pften used to refer to standard low resolution screen modes

VGA: Video Graphics Array. A later standard generally including 640x400 and 640x480 pixel displays.

SVGA: Super Video Graphics Array. A superset of VGA which addresses resolutions above 640x480 pixels. Normally with 800x600 and 1024x768 resolutionscreen modes.

Multisync: The NEC trademark for its range of multi-frequency scanning monitors. These monitors will synchronise themselves automatically to the signal frequencies of the incoming picture signal. Also known as FlexScan (Eizo), multiscan and auto-scanning.

Trinitron: A Sony-patented CRT which uses one electron gun instead of three for all three primary colours. This enables very accurate colour alignment and less brightness and colour attenuation.

Dot Pitch: The physical size of each colour pixel etched into the surface of the display area, measured in millimetres. A smaller dot pitch will provide a finer, higher resolution display.

CRT: Cathode Ray Tube. The technical and historical term for a TV tube.

FST: Flatter Squarer Tube. A collective name for modern CRTs which have a smaller curved display surface.

Misconvergence: Misalignment of the electron beams which generate the three primary colours. This can show up as colour shadowing and blurring.

Horizontal scan frequency: The frequency at which the monitor rasters the lines onto the screen which make up the picture you see. The higher this rate the more picture detail (pixels) which can be incorporated into each line.

Pincushion distortion: Adjusts the straightness of the sides of the picture, changing between concave and convex.

Trapezium distortion: Affects the relative width of the top and bottom of the picture on screen.

Model	Samsung SyncMaster 3 CVM4967T	Eizo T560i-T	Taxan Ergovision 865 Plus LR	Aries A-Scan Pro	Acorn AKF50	NEC 4FGe
Size	14in	17in	17in	14in	14in	15in
Price (ex VAT)	£199	£1500	£799	£249	£375	£699
Supplier	Castle Technology	Eizo Pro-Display Systems	Taxan (Europe)Ltd	Watford Electronics	Acorn Computers Ltd	NEC (UK) Ltd
Phone	(0728) 621222	(0483) 757118	(0344) 484646	(0582) 487777	(0223) 254254	081-993 8111
Fax	(0728) 621179	(0483) 757121	(0344) 50974	(0582) 488588	(0223) 254262	081-993 6499
Category	SVGA	High rate multi-scan	Medium rate multi-scan	Medium rate multi-scan	SVGA+Satndard Res	Medium rate multi-scan
Tube	Conventional	Trinitron	FST	Conventional	Conventional	FST
Measured visible screen diagonal	13.25 in	16.2 in	16.2 in	13.5 in	13.4 in	13.8 in
Scanning frequency - H	31.5-35.5KHz	30-82KHz	40-64KHz	29-60KHz	15-38KHz	31-62KHz
Scanning frequency - V	56, 60, 70, 86.6KHz	55-90KHz	50-90KHz	69.8-87KHz	40-90KHz	55-90KHz
Bandwidth	45MHz	130MHz	86MHz	110MHz (-3dB)	36MHz	80MHz
Max non- interlaced resolution	800x600	1280x1024	1280x1024	1024x768	800x600	1024x768
Acorn standard res compatible	No	No	Yes	Letterbox only	Yes	No
Screen dot pitch	0.28mm	0.26mm	0.28mm	0.28mm	0.28mm	0.28mm
Controls	Analogue	Rotary/digital	Digital/analogue	Analogue	Analogue	Digital
Preset memories	No	Yes	Yes	No	No	Yes
Pincushion	Yes	Yes	Yes	Yes	No	Yes
Trapezium	No	Yes	Yes	Yes	No	No
Energy saving	No	Yes	Yes	No	No	Yes
Low radiation MPRII	Yes	Yes	Yes	Yes	Yes	Yes

The BJC-600 and RISC OS 3 Turbo DRIVERS

The new BJC-600 A4 plain paper printer from Canon, combined with Computer Concepts' 24-bit TurboDriver software, provides a key component in the full colour revolution that is occurring in the Acorn world.



REVIEWS

*"Perhaps the most impressive thing about the BJC-600 is that it can happily print on bog-standard plain paper...
The second most impressive thing is the colour, which is positively vibrant and quite even...
Quite simply it's the best colour printer under £600..."*
PCW

*"The output can be brought as close to perfection as you'll get this side of a dye-sublimation printer...
The BJC-600 enables Acorn users to finally break the colour barrier...
The results are nothing short of brilliant"*
Acorn User

AFFORDABLE, HIGH QUALITY COLOUR PRINTING

The printer comes bundled with the latest colour TurboDriver software. This provides the fastest possible print times and full control over half-tones. The software includes advanced grey component replacements and black generation algorithms to ensure accurate colour reproduction and good greyscales - it also avoids 'black flooding' that can occur with other printers.
The package also includes; all necessary leads, start-up and user guide, colour documentation guide, a set of inks, DOS and Windows drivers and sample inkjet transparencies.

Some of its key features:

- Four colour CMYK inks for the best full spectrum of colours including real black.
- Separate ink cartridges for each of the colours - saves ink and money. It's even possible to change the ink cartridge part way through a page being printed.
- Ultra fast drying inks designed specially to prevent ink spread on plain paper - no other colour ink-jet printer can even come close to the quality obtainable from this printer.
- 360 dpi provides 40% more dots per square inch than 300 dpi printers - visibly better resolution.
- The high quality of print on plain paper means lower running costs than other colour inkjet printers.

NEW LOW PRICE £60 OFF

RRP: £469.00 + £10.00 carriage + VAT (£562.82)
For 24 bit colour work we recommend 4Mbytes RAM and a hard disc.
Requires RISC OS 3.1

E&OE Prices & descriptions are subject to change.

Computer Concepts Ltd

GADDESDEN PLACE HEMEL HEMPSTEAD HERTS HP2 6EX TEL.: 0442 63933 FAX. 0442 231632
EMAIL: Info@CConcepts.co.uk



What the eye can see...

Chris Honey can't see without his specs, and computers can't see without some form of image input device. The electronic optician goes in search of the complete picture...

If you need to take pictures from the outside world, then you need some way of capturing the image. How you go about getting the image inside your computer depends on where it is coming from in the first place.

If the image can be held in your hand then the chances are you need a scanner, otherwise let's assume the image is from a video source such as a camera or video player, for which a video digitiser is required.

Image scanners are a bit like photocopiers, in that the picture is scanned and held in memory, where it can be processed or printed. Scanners vary in resolution from 100 dots per inch (dpi) up to 800 dpi, and give either 256 grey levels or full 24-bit colour.

On the other hand, video digitisers take a video signal and convert it into pixels, but have a lower resolution than scanners; a full TV picture is 768x576 pixels at around 90dpi.

All the imaging devices can output data in various formats for inclusion in just about every application that can accept sprites.

This round-up lists the most popular devices on the market at present and once armed with an understanding of the jargon you should request further details before making your decision when buying.

Video Digitisers

Perhaps the best selling digitiser ever was the Watford Electronics grey scale digitiser. This was a real-time grey scale digitiser but is now showing its age. The latest grey scale only digitiser, GreyHawk from Wild Vision, is a generation ahead and costs only a few pounds more.

A grey scale digitiser is all you need to get still video clips into your DTP package and to print them out in grey-levels with any of the supported monochrome printers.

For full colour work you will need a good (at least 16-bit) colour digitiser. Although the Acorn machines have their graphics limited to 256 colour modes the software provided with the digitisers can reproduce the higher number of colours by dithering and producing a 256-colour file.

Whilst this technique is good for viewing the image on screen it is not the best for printing, so the latest software allows you to save the full colour image in one of the new 16/24bpp sprite formats, or an equivalent such as Clear format.

The updates to *Impression* and *Artworks* handle the new sprite formats, and certainly do give good results. Most colour digitisers also offer grey level output at either 64 or 256 grey levels.

Analogue vs digital capture

The technical progress of digitising systems has developed considerably over the last two years. Philips' new 100Hz flicker-free televisions digitise the picture into a framestore and display it at 100Hz, instead of 50Hz, to reduce the flicker. A digital signal processor (DSP) is then used to split the digitised picture into red, blue and green components.

Before the introduction of digital processing the RGB components of the incoming TV signal were separated using analogue circuitry and then individually digitised. The most popular digitisers of this type include the recently re-launched Hawk V9 Mk2 and Pineapple digitiser. Most digitisers available for the Acorn range now use the Philips chipset and offer better performance over the previous generation analogue designs. The DSP-based digitisers include Replay DIY, Moving i-mage, GreyHawk and the Eagle M2.

Real-time vs full-motion

A real-time digitiser is able to capture a field of video during the time of the actual field and this is important if you are trying to capture part of a moving sequence.

The real-time digitisers with framestores capture the image in RGB or YUV format so it can be read out and displayed on the screen without requiring much in the way of software processing.

This allows the image on the screen to be updated many times a second so you can watch a moving sequence. The low cost digitisers are based around the digital capture technique but don't include the DSP to process the signal into the colour components, so the hardware is minimal (and cheap).

However, software processing takes considerably longer than the dedicated DSP, so it is not possible to achieve anything like full - motion.

These digitisers are an ideal entry point into the world of image capture. The best low cost digitisers are the Vision series available from HCCS.

There is a distinct difference between digitisers that claim real-time performace and those that claim the more impressive full-motion performance. On television the picture is updated

25 frames per second (fps), fast enough to trick the human eye into seeing a continuous motion.

Full-motion digitisers have the ability, either using software or hardware, to display the digitised image on your screen at a rate that allows moving objects to appear smooth.

However, using software, even on the fastest 33MHz A5000, you cannot display a full TV picture of 768x576 pixels in full motion; there simply is not enough processing power available. To get round this, hardware window overlay techniques must be used, adding to the cost dramatically. Only Irlam Instruments offers such a solution with its Moving i-Mage card.

A compromise is to scale the image so the software has less data to handle and can update the screen at the required rate. Reducing the size of the image can create unwanted effects, but anti-aliasing filters can be included in the hardware to remove problems; the latest versions of Replay DIY and Eagle M2 include a hardware video scaler to do just this.

Another technique to reduce the amout of data required for full-motion video is to compress the data. Replay DIY and Eagle M2 allow you to capture a full-motion video sequence and save it to disc, where it can be processed and converted into a compressed version.

Another compression standard, JPEG, has a good compression ratio and full-motion boards based on this technique are already available for other platforms. Perhaps we will soon see a new product on offer in the Acorn world.

Image Scanners

There are two main types of image scanner: hand-held and flat-bed. Hand-held scanners have a scanning width of around 100mm. The support resolutions from 100 to 400dpi and from 16 to 256 grey levels, but result in lower quality than that provided by the flat-bed versions.

This is due, in part, to the scanning mechanism and also to the quality of the optics used to focus the line being scanned onto the image sensor.

If your picture is wide then you need a bigger scanner and sizes up to A4 are supported by the flat-bed variety. These are higher quality devices and are used for serious DTP work.

Most of the hand-held scanners are grey level, but new on the scene is the first affordable 24-bit colour hand scanner from Irlam Instruments. The scanner can give 256 grey level images as well as 24-bit colour images at resolutions from 100 to 400 dpi.

Other colour scanners available are flat-bed, because the technology originally required three passes to build up the complete colour set – tricky to do by hand. The most popular colour scanner is the mini flat-bed (6 by 4 inches) JX-100 from Sharp. The larger A4 flat-beds are available and generally tend to be based around the Epson range.

Other options

One unique product on the market combines a 256 grey level digitiser and scanner on one expansion card. It is known as ScanLight Video 256 and is available from Wild Vision or Computer Concepts.

Finally there is another, perhaps more economical way, to get your photographs into your machine instead of scanning them yourself. Simply take your film and have it put onto a Photo CD, and then with the appropriate CD-Rom drive and software installed in your machine you can get at the images.

PRODUCT	SUPPLIERS	PRICE	TEL
DIGITISERS			
Hawk V9 Mk2: The classic Archimedes colour digitiser based on analogue techniques.	Wild Vision	£199	091-5191455
GreyHawk: A full-motion 256 grey level scanner at a bargain price.	Wild Vision	£99	091-5191455
Eagle M2: The latest colour full-moton multimedia facilities for making Replay movies.	Wild Vision	£299	091-5191455
Replay DIY: The Acorn Replay DIY kit offering full motion multimedia facilities for making Replay movies.	Irlam	£250	(0895) 811401
Replay Plus Upgrade: Adds real time scaling to the Irlam Replay DIY kit.	Irlam	£150	(0895) 811401
Moving i-Mage: Real time 24-bit colour desktop video system with hardware window overlay of 24-bit images on the desktop.	Irlam	£989	(0895) 811401
Mono Vision: Low cost grey scale digitiser, upgradeable to Colour and HiVision specification.	HCCS	£69	091-487 0760
Colour Vision: Low cost colour digitiser, upgradeable to Colour HiVision.	HCCS	£99	091-487 0760
Colour HiVision: Top of the range low-cost colour digitiser.	HCCS	£149	091-487 0760
Pineapple Colour Video Digitsier: Popular colour digitiser based on analogue techniques; occupies two expansion slots.	Pineapple	£199	081-599 1476
SCANNERS			
Epson GT6500: A4 flat bed, 600dpi resolution, medium-priced colour scanner.	Irlam	£875	(0895) 811401
Epson GT8000: A4 flat bed, 800dpi resolution, faster than the GT6500. Top end colour scanner.	Irlam	£1199	(0895) 811401
Sharp JX-100: Post card sized mini-flat bed, 400dpi resolution. This is a very cost-effective colour scanning solution.	Irlam Risc Developments	£499 £549	(0895) 811401 (0727) 840303
Colour Hand Scanner: A 24-bit colour and 256 grey level hand-held scanner. 100 to 400dpi resolutions.	Irlam	£359	(0895) 811401
ScanLight 256: Very popular grey level hand-held scanner from the people who do Impression and Artworks.	Computer Concepts	£595	(0442) 63933
ScanLight Professional: A4 flat bed, 75-600dpi. The only 256 grey level flat bed scanner available.	Computer Concepts	£189	(0442) 63933
ScanLight Video 256: A combination of the ScanLight 256 hand-held scanner and the GreyHawk 256 grey level digitiser.	Computer Concepts	£220	(0442) 63933
Scan256: A fast 256 grey level 400dpi hand-held scanner with sophisticated support software.	Watford Electronics	£159	(0582) 487777

All prices exclude VAT and carriage.

Jack Kreindler looks at three different Acorn graphics setups, to suit all pockets from budget to dream machine

Graphics station

Computer graphics is a field which applies to a very broad spectrum of users with an equally wide range of budgets. Here I have attempted to classify three of the groups which encompass the requirements of the entire spread.

The low-end user

To start at the bottom of the pile there's the low-end user. This category covers those who use their computer primarily for word processing or for entertainment but who might also design the occasional poster, paint the odd picture or perhaps create a project title page. With regards to cost, the upper limit for the low-end graphics user is no more than £1500.

Anything more than 2Mb would be unnecessary and on this budget an A3020 with a medium resolution monitor would be the best bet.

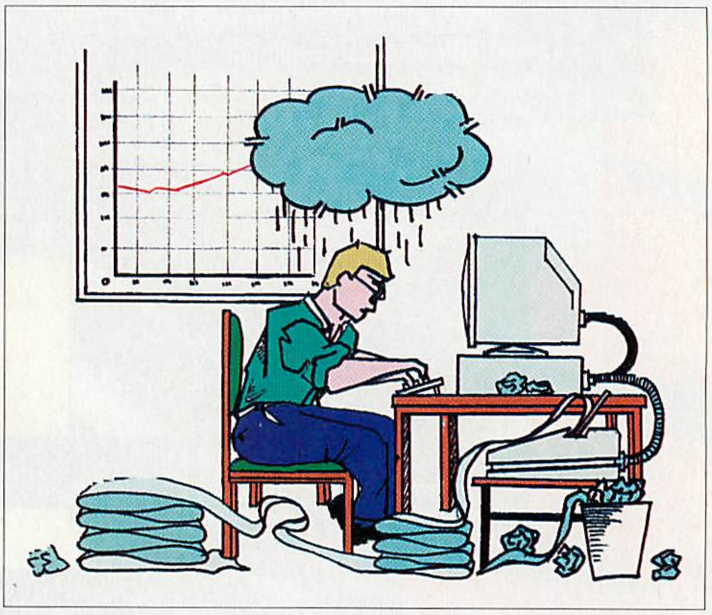
An appropriately targeted graphics package like *ArtWorks* and a graphics - capable word processor should suffice – the rest of your allowance is best directed at an output device.

Computer Concepts' Scanlight 256 or the Watford Electronics Scan256 hand scanners are good entry level image grabbers, funds permitting.

Dot matrix printers (either 9-pin or 24-pin) at around £200 are an antiquated technology now, but do give you cheap colour printing. For brilliant monochrome graphics and 360dpi quality text the renowned Canon BJ10sx is worth looking into.

To achieve surprising colour quality, with a little extra effort, a colour separation program like ICS' *ColourSep* can give you the colour output you might desire from your mono bubblejet.

Computer: £800 - £950 (A3020 or A3020 with hard disc, both with monitors)
Printer: £200 - £250 (Citizen Swift 240C colour printer or Canon BJ10sx mono printer with sheet feeder)
Hand scanner: £200 (Watford Electronics or Computer Concepts)
Total price with software up to £1500



CARL FOX

The enthusiast or art department

The computer enthusiast is likely to spend a fair proportion of his/her time working in front of a monitor. The Acorn platform facilitates a high standard of desktop publishing even for the low-end user, with applications such as *Ovation* and *Impression Style*.

Users in this category would spend a greater time page setting with extensive integration of imagery. DTP of this intermediate level needs a high resolution display that can manage the larger square pixel modes like 28, 21 and 31 and also support the extended rectangular pixel modes effectively yielding a larger desktop.

Many of the latest DTP and graphics packages will readily fill up all your memory, so 4Mb of Ram is the recommended minimum. With this amount of memory large repeating graphics files within multi-page documents can be edited with ease.

In days gone by a hard disc was a luxury for Acorn users, but we are now seeing a transition to the PC and Mac tradition with an increasing number of software products being used exclusively from faster storage media. The A4000 is available with an 80Mb IDE drive – anything less should be reserved for super-humanly economical users.

There is little difference now, in terms of processing power, from the bottom to the top of Acorn's present range. When the Arm2 was replaced by the Arm250 the three-fold margin between the former chip and the Arm3 was greatly narrowed.

So for those who do not consider upgradeability of paramount importance, an A4000 will give good performance coupled with a worthwhile saving in expense.

Many people, though, intend to use their computer for image inputting, image manipulation, heavy duty DTP and complex vector graphics work, and outright performance of the CPU (the Arm chip) is of the utmost importance in this case.

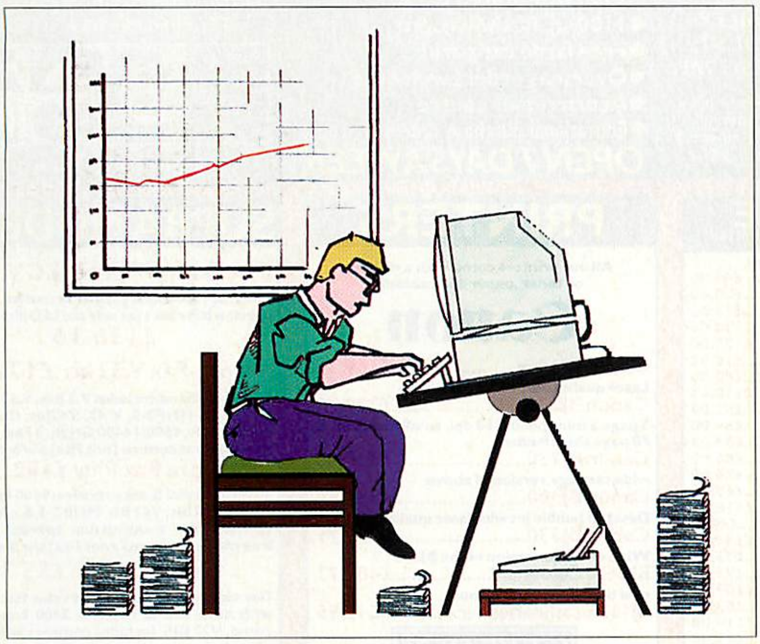
If you can afford it, go for the A5000. The latest models have an enhanced clock rate of 33Mhz making them over 30% faster than their 25Mhz predecessors.

As far as printing goes, colour inkjets are perfect. The HP550C and the slightly more expensive, but substantially more refined, Canon BJC-600 both offer near laser quality text with suberb 24-bit colour output.

People may benefit from the increased impact of full colour printouts compared to black and white ones, but if quality of text and monochrome graphics is your main aim then you couldn't go far wrong with Computer Concepts' LaserDirect HiRes4, priced at £799 + VAT, with *Impression* bundled in for free.

For true 600dpi quality (enhanced to 1200dpi) and 8ppm speed, the Calligraph A4-1200 is superb value at £999 + VAT.

Image inputting at this level would really be limited to hand



scanners and perhaps a video digitiser. Companies such as Irlam Instruments, Computer Concepts and HCCS all offer well-priced products to cater for all kinds of scanning and video processing needs.

Though it has yet to be reviewed, the new Logitech 24-bit colour hand scanner (£379 + VAT) from Irlam Instruments looks to enable high quality, true colour image inputting at an affordable price.

Computer: £1000 (A4000) - £1800 (A5000)
Printer: £525 (HP550C) - £1200 (600dpi laser)
Image input: £300 - £450 (Irlam Instruments, HCCS, Computer Concepts scanners)
Total Price with software: £2500 - £4000

Professional setup

If you are looking to build a computer system for professional use, the last thing to worry about is money. In fact thinking too much about the expenditure for this category may be bad for your health.

Albeit difficult to justify, spending up to £12,000 on a computer system is surprisingly little in comparison to a similar specification system with a PC or Mac. Because of the number of software houses and hence the amount of competition between them, the DTP and graphics applications for the Mac and PC are extremely powerful but also very costly. To take *Quark XPress* as an example, you're looking at no less than £800, as much as a complete A3020 system. The forthcoming *Impression Publisher*, though unfortunately the only program in its class, will offer features that most professionals would never even need, for a good £600 pounds less than the *Quark* equivalent.

Though the future promises to support professional publishing software that can be customised by users of any level of experience, presently this can only be achieved by competent programmers.

Currently, the market is too small to support an adequate number of third party software developers, but with Acorn's gradual infusion into professional DTP this is bound to change.

Hardware specifications should be very high for graphics/DTP workstations. 8Mb of Ram is a minimum, and with the advent of State Machine's ClusterCard memory upgrade, 16Mb of Ram for A5000s would not go amiss.

A large monitor and a high resolution display is vitally important to those who spend a majority of their working lives in front of computers. Nothing smaller than a very high line rate, 0.26 dot pitch, 17in monitor should sit on the end of the video cable.

The professional would look at running at least 1152x848 pixels with a high refresh rate, and in order to achieve this and get the most out of 17in or 20in display, a graphics card is essential.

Either the Computer Concepts ColourCard (£250 + VAT) or for a higher quality output, the State Machine Colour Burst (£399 + VAT) would both do the job. Data storage would typically be no less than a Gigabyte and, over time, old archives can be speedily and economically stored on removable hard disc systems.

Irlam Instruments, the A4 flatbed specialist, produces a 1600dpi, 24-bit scanner based on the Epson GT8000. This would undoubtedly be part of a professional system, as would a multi-session high speed CD-Rom drive for access to the vast amount of imagery available from Photo CD and other image sources.

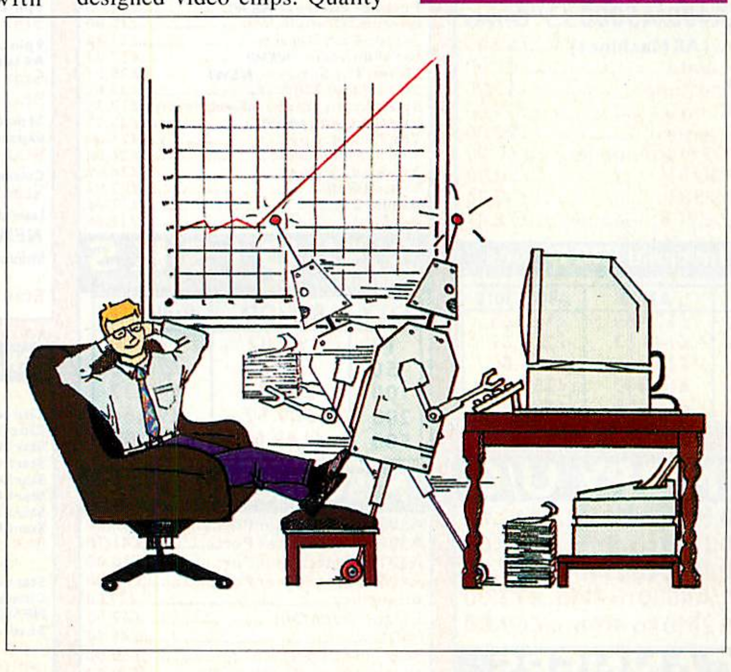
A professional quality video board like the Millipede Graphics Apex Imager would set you back approximately £4000. This includes PAL, NSTC and SVGA output in 32-bit colour depth, generated by the double width card's own Arm3 and custom designed video chips. Quality from this board is unparalleled by anything else on any platform.

Printing camera-ready copy is achievable without expensive image setting equipment, with enhanced laser printers like Calligraph's TQ-1200 (£3500). This magnificent A3 600dpi printer, using Calligraph's direct drive technology, can produce superb true 1200x600dpi output and 255 greyscales comparable to typesetting devices that cost over five times that amount.

As for colour printing, there are extremely capable inkjet, dye sublimation, and even colour laser printers on the market, which would set you back the best part of ten grand, for photographic 300lpi, 24-bit colour output.

With the price of computer equipment falling as it is, one day today's awesomely powerful professional system may become commonplace in the home. But for now... dream on!

Computer: £3000 (A5000 8Mb Ram, 1Gb hard disc)
Graphics accelerator: £300 - £400 (ColourCard Gold or ColourBurst)
Monitor: £1000 (17in high line rate) - £2000 (20/21in 1600x1200 monitor)
Printer: £1500 (Canon BJC-800 A3 colour) - £3500 (Calligraph TQ-1200 A3 laser)
Removable hard disc system:



CARL FOX

15

"VOTED BEST DEALER" CU AMIGA JAN 93

FIRST COMPUTER CENTRE

HOW TO ORDER

Order by telephone quoting your credit card number. If paying by cheque please make payable to the:

"FIRST COMPUTER CENTRE"

In any correspondence please quote a phone number & post code. Allow 5 working days cheque clearance

SHOWROOM ADDRESS:
DEPT. AU, UNIT 3, ARMLEY PARK COURT, OFF CECIL ST, STANNINGLEY RD, LEEDS, LS12 2AE.

Prices are correct at the time of going to press. Please check our latest prices before ordering. All sales are subject to our standard terms & conditions(copy available upon request). E&OE.

DELIVERY TARIFFS

- Software standard delivery.£1.06
- 2-3 Week Days..............£2.51
- Next Week Day...........£4.21

Delivery subject to stock

- All prices exclude VAT unless otherwise stated
- 1100 sq. ft. showroom
- Free large car park
- Overseas orders welcome
- Acorn repair centre
- Educational purchase orders welcome

OPEN 7 DAYSAWEEK

SALES & TECHNICAL

24 HOUR MAIL ORDER SERVICE

0532 319444

FAX: 0532 319191

ORDER or RETURNS ENQUIRES
TELEPHONE 0532 319444

2% surcharge on Amex

COMPUTERS

A3010 *Action Pack*....£327.00
inc. Zool, StartWrite word processor, + interactive demo software: Lemmings, Chuck Rock, Superpool & Fervour. 2*HD disks, Step by Step audio cassette, & mouse

***Learning Curve Pack*.£593.00**
inc the Acorn AKF30 monitor (see below for details of bundle)

A3020 FD................£647.00
complete with Acorn AKF40 monitor

A3020 HD60...........£768.00
complete with Acorn AKF40 monitor

A4000 HD80...........£835.00
complete with Acorn AKF40 monitor

A5000 2Mb HD80..£1219.00
33 Mhz version complete with Acorn AKF52 multiscan

A5000 4Mb HD160.£1435.00
33 Mhz version complete with Acorn AKF52 multiscan

A5000 2 Mb HD40 Learning Curve
25 Mhz version without monitor.......**£725.00**

Extra Software Bundles

***Learning Curve Pack*....£42.55**
Complete with Acorn Advance (word processor, spreadsheet, database and graphs), PC Emulator, Dr-Dos, Plus interactive demonstration software: Rhapsody II, ScoreDraw, VoxBox, Fervour, Topographer, Darryl the Dragon, smArt, Chrystal Rain Forest, Naughty Stories & ArcVenture.

***Home Office Pack*.......£85.11**
Complete with Easiwriter, DataPower, Pipedream 4, PC Emulator, Dr-Dos, plus interactive demonstration software: Prophet & Almanac

Upgrade AKF40 Monitor to AKF52 Multiscan *Add* £42.55
AKF52 to AKF50 *Add* £63.83

We Operate The Teachers Scheme
(Please call for Details)
3 Years On-site Warranty

A3010 and A3020 FD	£42.50
A3020 HD and A4000 HD	£51.00
A5000	£68.00

HARD DRIVES

A300/A400/A5000 3.5" Drives

IDE Card (All Machines)	£69.00
42Mb Seagate	£87.00
120Mb Samsung	£143.00
170Mb Conner	£150.00
210Mb Maxtor	£190.00
A3000 IDE Multi-podule	£69.00
A3000 PSU Kit	£30.00
A3010 PSU Kit	£30.00
A3010 IDE Multi-podule	£71.49

2.5" Internal IDE Drives

SIZE	A3020	A3000/3010
40Mb	£127.65	£196.65
60Mb	£144.67	£213.67
80Mb	£166.80	£235.80
120Mb	£184.00	£253.00
210Mb	£315.00	£384.00

MEMORY U/G

A3000 1Mb to 2Mb	£49.00
A3000 1Mb to 4Mb	£129.00
A3010 1Mb to 2Mb	£38.00
A3020/A4000 to 4Mb	£72.00
A5000 2Mb to 4Mb	£89.00

SCANNERS

Scanlight 256.........£191.48

SOFTWARE

Please phone for other titles if not listed

Application Software

Arc Comm Version 2	£46.00
Arc Fax NEW!	£20.40
Arcterm 7 NEW!	£58.00
Artworks	£130.00
Data Power	£125.00
Desktop Thesaurus	£16.98
Easiword 2	£42.00
Genesis II	£110.63
Graphbox V2	£57.00
Hearsay II comms software NEW!	£69.00
Home Accounts	£34.03
Impression Style NEW!	£86.00
Morpheus NEW!	£28.00
Pendown Plus	£67.00
Pipedream 4	£118.28
Primeword	£49.00
Prophet NEW!	£144.67
Rhapsody 3 (2Mb required)	£78.00
Render Bender 2	£75.00
Resultz NEW!	£109.74
Talking Pendown	£53.00
Titler	£114.00
Wordz	£75.00

Educational Software

Dinosaurs NEW!	£17.00
Driving Test NEW!	£17.00
Early Essentials NEW!	£17.00
English NEW!	£17.00
French NEW!	£17.00
Fun School 5-7	£17.00
Fun School 7-11	£17.00
Fun School 4 less than 5	£17.00
Junior Essentials	£17.00
Maths (Algebra)	£17.00
Maths (Numbers)	£17.00
Maths (Statistics)	£17.00
Noddys Big Adventure NEW!	£17.00
Noddys Playtime NEW!	£17.00

Entertainment Software

Birds of War NEW!	£23.82
Black Angel	£23.82
Break 147 & Superpool	£23.82
Carnage Inc. NEW!	£17.86
Chopper Force	£23.82
Crystal Maze NEW!	£28.93
Crystal Rain Forest	£32.33
Cyber Chess	£23.82
Gods	£17.86
Heimdall NEW!	£19.00
Hero Quest	£20.42
James Pond 2 NEW!	£17.86
Lemmings 2(The Tribes) NEW!	£20.00
Lotus Turbo Challenge	£17.86
Magi Pockets NEW!	£17.00
Man United Europe	£17.86
Nebulus	£17.86
Pandoras Box	£17.00
Play it Again Sam II	£18.68
Play it Again Sam III NEW!	£18.68
Populous	£20.42
Premier Manager NEW!	£17.00
Repton 3 Compilation	£17.00
Saloon Cars Deluxe	£23.82
Sensible Soccer NEW!	£17.86
Simon The Sorcerer NEW!	£28.93
Stunt Racer 2000	£23.82
Sylvia Layne (Exotic Adventures of)	£17.86
The Dungeon NEW!	£23.82
The Real McCoy 2	£21.00
The Real McCoy 3	£21.00
The Real McCoy 4	£24.00
Virtual Golf	£23.82
Xenon 2	£17.86
Zool	£17.86

3.5" DISKS

All disks are 100% error free guaranteed

QTY	Bulk DD	Bulk HD
10	£3.82	£5.40
50	£17.86	£25.56
100	£32.33	£49.32
200	£59.57	£96.64
500	£143.82	£234.00

MISCELLANEOUS

A3000 3 Slot & User Port	£38.00
A3010 2 Slot & User Port	£41.70
A3020 3 Slot & User Port	£38.00
A4000 3 Slot & User Port	£38.00
Analogue	£29.00
Colour Video Out	£49.00
MIDI	£49.00
SCSI (Inc CDFS)	£69.00
Colour Vision Digitiser	£79.00
Colour HiVision	£129.00
Acorn Original Mouse	£29.78

PRINTERS

All our printers come with a ribbon or toner ,paper and cables!!

Canon

Canon BJ10sx.....................£169.36
Laser quality output. Large buffer
Canon BJ200.......................£229.78
3 page a min speed, 360 dpi, small footprint & 80 page sheetfeeder
Canon BJ230.......................£310.64
wide carriage version of above
Canon BJ300.......................£357.44
Desktop bubble jet with laser quality
Canon BJ330.......................£395.75
Wide carriage version of the BJ300
BJC600 Colour.......................£487.72
new bubble jet from Canon
BJ10 Autosheetfeeder..............£42.55

CITIZEN COMPUTER PRINTERS

Citizen printers have a 2 year guarantee

ABC Colour printer............£148.00
simple (as easy as ABC) to use 24 pin printer. Comes as standard with 50 sheet Auto sheet feeder. Tractor feed optional at £23.82

only £150.99 if bought without the colour option

Swift 90 Colour...................£133.62
Excellent value 9 pin colour. Highly recommended
Swift 200 Colour.................£246.80
Same out put as the 240 but with less facilities
Swift 240 Colour.................£193.19
24 pin, 240cps draft, 10 fonts, quiet mode, 240cps.
Projet II.............................£217.02
new inkjet printer with built in auto sheet feeder
Swift Auto Sheet feeder........£68.09

HEWLETT PACKARD

HP Deskjet Portable...........£190.64
HP510 mono.......................£212.77
HP 500 Colour....................£263.83
HP 550 Colour....................£377.87

4 times faster than the HP500C!!
All HP printers come with a 3 year warranty

THE star COMPUTER PRINTERS

Star LC100 colour..............£119.15
9 pin colour, 8 fonts, 180 cps draft, 45 cps NLQ
Star LC200 colour..............£160.00
9 pin colour, 8 fonts, 225 cps draft, 45 cps NLQ, A4 landscape printing.
Star LC24-30 Col..............£189.79
Star LC24-300 Col..............£246.80
24 pin quality, 210 cps draft, 67 cps LQ, 39K buffer expandible to 48K, 10 fonts and quiet mode.
Star LC24-200 colour.........£224.68
Colour version with 30K buffer expandable to 62K
Star SJ48 Bubble jet............£183.83
Laser quality, ultra quiet, Epson compatible & portable
***NEW!* Star SJ144 Colour Thermal**
Stunning colour printer. 3 PPM, low running costs
only £374.47
Star SJ48 Autosheet feeder..£42.55

SUPRA MODEMS

The Supra-Fax 144LC V.32 bis
Low cost 14400 baud V32Bis Fax modem. Features as below but class 1 fax only and LED display
£136.16

Supra-Fax V.32 bis £178.71
Full 14400 baud. includes V.32bis, V.32, V.22bis, V22, V21, MNP2-5, V.42, V42bis, Class 1 & 2 commands, 9600/14400 Group 3 Fax. Includes free modem comms (not Fax) s/w & cable

Supra Fax Plus £102.31
With auto dial & auto receive. 9600 bps Hayes comp. V22Bis, V42 Bis, MNP 2-5 & auto adjust to maximise transmission speeds. Includes free modem comms (not Fax) s/w & cable.

Supra 2400 £55.31
Get on line using this great value fast modem with auto dial & receive. 2400 baud Hayes comp, V22 BIS. Includes comms s/w & cable!!

All Supra Modems come with a 5 year warranty

US ROBOTICS

WE ARE PREFERRED DEALERS

Sportster 2496 +FAX	£124.25
Sportster 14400 FAX	£207.65
WorldPort 14400 +FAX	£214.47
Courier HST (16.8)	£400.00
Courier V32bis Terbo +FAX	£382.98
Courier HST/Dual 16.8 Fax	£417.02
Courier HST/Dual 16.8 Terbo Fax	£474.04

If you thought V32bis was fast try the terbo! They come with a 5 year warranty *& are BABT Approved!*

Arc Fax Software only £17.87 if bought with modem

PACE MODEMS

MicroLin V22b FAX	£149.79
MicroLin V32b FAX	£234.04

5 year warranty *and FULLY BABT Approved*

MONITORS

All our monitors are UK spec. All monitors come complete with an Acorn lead*

Acorn AKF30/40....................£211.91
inc tilt & Swivell stand
Acorn AKF52 14" multiscan.....£254.47
Acorn AKF50 SVGA..............£318.30
High quality colour SVGA monitor. .28 dot pitch
Sonica medium res Colour monitor
replacing the now unobtainable Philips 8833, this monitor is superior to a standard TV. Come complete with tilt & swivell stand
only £161.69
Sharp TV/Monitor..........£165.99
combining higher quality output from a monitor with the practicality of a remote control TV

PRINTER CONSUMABLES

Ribbons

Citizen Swift mono ribbon	£4.25
Citizen Swift Colour ribbon	£11.91
Star LC100 mono	£3.14
Star LC200 mono	£4.25
Star LC100 colour	£6.80
Star LC200 colour	£11.00
Star LC24-30 mono	£7.65
Star LC24-30/200 Colour	£10.20
Re-Ink Spray for mono ribbons	£10.20

COVERS

Star LC10/20 cover	£4.25
Citizen Swift/ABC	£5.10
HP 500/550/510	£5.10
Star LC24-300/30/100/200	£5.10

PAPER (fanfold or single sheet)
prices apply only when ordered with printer or purchased direct from the showroom

1000 sheets...£7.65
2000 sheets.£15.31

Delivery for 2000 sheets £4.26 when purchased without printer

PREMIER Ink Refills

save a fortune in running costs with your ink/bubble jet. Compatible with HP, Canon, Star, Citizen & many others.

single refills (22ml)	£5.95
Twin refills (44ml)	£11.06
Three colour kit (66ml)	£17.00
Full colour kit (88ml)	£23.82
Bulk refills (125ml)	£21.27

Cartridges

Canon BJ10 cartridge	£16.16
Double life 500 cartridges	£23.82
HP550/500 Colour cartridge	£23.82
Star SJ48 cartridge	£16.16
Star SJ144 cartridge (pack of 3)	£36.59
Star SJ144 mono or colour (3 pack)	£14.46

Miscellaneous

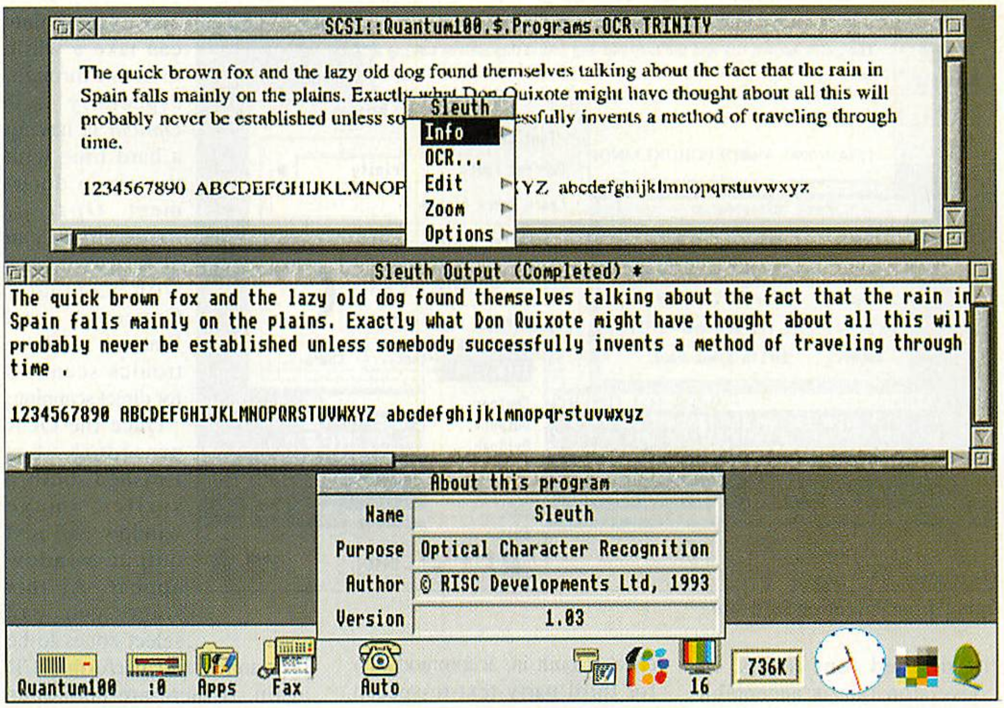
Printer Switch Box 2 way	£11.06
Printer Switch Box 3 way	£17.00
Printer Stands (Universal)	£6.80
3 Metre printer cable	£5.95
5 Metre printer cable	£7.65
10 metre printer cable	£11.06

Character assessment

A year ago we looked at Optical Character Recognition on the Archimedes. Now Ian Burley investigates the release versions of Sleuth and Optical

Back in May 1993, *Acorn User* concluded that it was still early days for Optical Character Recognition (OCR) software on the Acorn scene. Almost a year later, two of the three packages we previewed are actually available.

Risc Developments' program – then untitled, and now christened *Sleuth* – and Neurotron Software's *Optical* package have now been released. Unfortunately *Elucidata* from Irlam Instruments doesn't appear to be actively marketed or developed by Irlam.



Slueth from Risc Developments

Sleuth

Sleuth is an OCR package which works straight out of the box. It's very easy to use and practically perfect results can be obtained by dropping the sample text scan sprites provided.

On the debit side, *Sleuth* only recognises eight commonly used fonts, and even then only in regular form, not bold, italic or any other unusual variation. Unlike Neurotron's *Optical* package, *Sleuth* can't be taught new fonts by the user.

Once *Sleuth* has been installed, you simply need to drop a sprite file of the scanned text image onto the application icon; a window showing the sprite image immediately appears on the screen.

Image editing facilities include rotation, though only in 90 degree steps, and white/black inversion. The sprite view can be zoomed using a ratio selector; I prefer a percentage-scale selector.

If the image contains an uncomplicated layout of page-wide lines you can choose to OCR the whole image straight away. The OCR option is available from a small menu which pops up from the sprite window. If you wish to OCR a specific selection of the image, a box-shaped zone can be created using the mouse. This is necessary if the page contains several columns or horizontal white space cannot be detected all the way across the image.

The next stage is to start the OCR process. This generates a second window which slowly fills up, line by line, with *Sleuth*'s interpretation of what's written in the sprite image.

The text window title bar indicates when the OCR process is running and finally when it has finished. *Sleuth* also lets you edit the textual output while it is converting the sprite image, though as the window fills up, it scrolls.

Unless the passage being scanned is fairly long, it's probably best to wait until the OCR process has finished. At that point, you can export the resulting text, in text file form, into your favourite word processor. OCR options available include a user-selectable reject character, which will show up in the place of an unrecognisable character, and end-of-line and end-of-paragraph escape sequences, which can be inserted into the output text before it is saved.

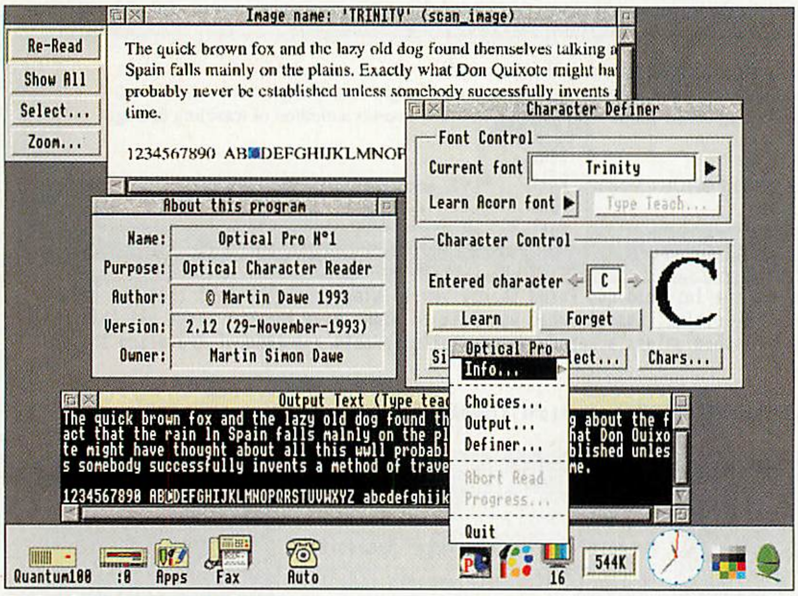
Currently the only eight fonts recognised by *Sleuth* are Avant Garde, Helvetica (Homerton), Bookman, New Century School Book, Courier (Corpus), Palatino (Paladin), Garamond and Times (Trinity).

Sleuth copes well with these fonts in different sizes but not in their italicised or bold forms. Realistically, these fonts cover most commonly printed text styles, but as there is no option to teach *Sleuth* new fonts, if you find you need to OCR an unusual font, you're stuck. The reward for limiting the scope of *Sleuth* is its accuracy. It was able to scan all the test scans with impressive efficiency, with practically 100% accuracy on all the sample scans provided with both the packages and *Acorn User's* own *Scribel*.

Only one of my own test sprites using an unsupported font, Rockwell, caused problems, but even then the output was far from garbage. It's well worth testing to see if an unsupported font you'd like to OCR will work acceptably.

Unfortunately, *Sleuth* is useless at converting all but the clearest paperless fax documents. Heavily kerned text is also to be avoided.

Sleuth isn't the fastest OCR package around, but considering its cost and accuracy within



Optical from Neurotron Software

the defined font limits, its conversion rate is acceptable at around 100 words per minute on an Arm3 upgraded A420/1 Archimedes.

Overall, *Sleuth* is very easy to use and very accurate given the right fonts and original document image quality, but is not very good at coping with poor quality document images.

At the price it's good value and can be recommended, but I think there are plenty who probably want more from an OCR package than *Sleuth* currently offers.

Risc Developments is happy to acknowledge this, and while the current version is to be gradually improved, with italics and bold font support for example, in the more distant future we can expect a more professional package. This may well be with support for David Pilling's TWAIN scanner interface, but probably not with a font learning system.

Optical

Neurotron's *Optical* package, written by Manchester University computer science student Martin Dawe, has largely been rewritten since we saw it last year.

Optical is a much more ambitious package than *Sleuth*. This means it is inherently more complex, but potentially more capable.

Unlike *Sleuth*, *Optical* can be taught new fonts, and the more expensive *Optical Professional* has a spelling checker built in, accommodation for third party text-to-speech utilities and has provision for a specialised multiple-column selector, though this wasn't working in our review copy.

There is also a ligature splitter option for dealing with characters which are made up of one or more separate components, like an 'i' or 'j' for example. Simple and advanced settings will cope with two-part characters and multiple parts respectively.

Optical is also quite fast, between 30% and 100% faster than *Sleuth*, depending on the image being converted; speed ranges from between 130 to 200 words per minute.

Another useful feature in the professional version is a colour translator for converting coloured sprites into monochrome, necessary for the OCR procedure. A virtual memory facility means that sprites too large to fit into available memory can be processed in chunks from disc. This means *Optical* works acceptably well in a 2Mb machine.

In use, *Optical* is much like *Sleuth* to start with; you drop your scanned document sprite onto the *Optical* application icon. Unlike *Sleuth*, *Optical* starts its OCR procedure immediately, so the first thing that happens is an hour glass with a percentage-to-completion indicator appearing.

The progress indicator is not usually linear and the last few percentage points can take a while to count through, especially if *Optical* is having a hard time with the given document. *Optical Professional* can also interface with Computer Concepts and Watford Electronics scanners for direct scanning.

Once the OCR procedure has finished, both a sprite image window and text output window appear. At this stage you can select zones to be re-scanned and perform OCR again. If there are numerous mistakes in the output, you can teach *Optical* to correct its mistakes.

Individual characters can be highlighted in the character definition dialogue box and taught the correct translation. I tended to use the type-teach facility which highlights each character in the text and sprite windows and lets you type the correct character over an incorrect one.

This automatically updates *Optical's* font definitions, which can be saved out for re-use. As the font definition improves, and you move the cursor along the text produced by its last attempt, *Optical* will try to correct its own mistakes. It's actually quite fascinating to play with at first, but may become tedious to have to use all the time.

From the character definition dialogue you can pop up a character table, which indicates which characters in the character set are known by the font definition currently loaded. Individual character definitions can be 'forgotten' and re-taught if necessary.

Martin Dawe admits, unreservedly, that there were one or two known bugs in the version (2.12) we looked at, which caused the learning system to be a bit unstable; for example, sometimes the wrong character was assigned in the text window when it was correct in the definitions dialogue. The ligature splitter in our version didn't work properly either, so single characters were often treated as several different ones. Martin says these bugs are all fixable and he points out that his company offers a free upgrade service to registered users.

Conclusions

Our results can't necessarily be considered conclusive, as *Optical's* documented bugs meant results weren't very consistent. While *Sleuth* regularly achieved 95% or better accuracy rates, our version of *Optical* only hit these rates after re-training, and then if you returned to a previous test, the result tended to have deteriorated.

I'm prepared to accept that these inconsistencies are down to transient development problems, but I couldn't recommend the version we tested. This is very frustrating, because the potential is clearly there. The user interface is good and the type-teaching facility is very intuitive.

Presuming that the bugs are successfully tackled and the promised accuracy rate is verified, *Optical* is potentially more attractive than *Sleuth* – but it will always be more complicated to use.

It's horses for courses; some will be very satisfied with a simple-to-use, but reliable, package like *Sleuth*, even if its fonts knowledge is limited. Many others will hope that *Optical's* teething problems will be fixed as soon as possible.

A special deal for *Optical* users wishing to upgrade to an *Optical Professional* version is available, with details, from Neurotron.

Product details

Product: Sleuth
Supplier: Risc Developments
Tel: (0727) 840303
Price: £49 + VAT

Product: Optical
Supplier: Neurotron Software
Tel: (0227) 700516
Price: £59 – no VAT, Professional version £119 – no VAT

IN BRIEF

Two graphics-related short reviews: a quick and easy way to get colourful printouts, and a graphics table to help improve your technical and freehand drawing

Color Tag

Supplier: Letraset UK
Tel: 071-928 7551
Price: £79.95 + VAT, colour strips £4.51 + VAT for 25

Although colour printing is getting better and cheaper all the time, to get a printout that is anywhere near the quality of what you see on your screen is still very expensive.

Now, thanks to a wonderful device called Color Tag from Letraset, there is an affordable method to add some colour to your work, and in a far more dramatic way than any colour printer. After all, how many printers have you seen that can do gold plating? Color Tag works with laser printer output, but won't work with other printer types such as bubblejets or dot matrix; however, as photocopiers and lasers use the same basic technology, all you have to do is photocopy your output and Color Tag will work with that.

In very basic terms, the 'ink' in laser printers and photocopiers is a compound of plastic and soot, which is heated to about 200°C to bond it to the paper. What the Color Tag does is re-melt the toner and bond another layer on top of it.

The Color Tag kit consists of a small hand-held applicator in a heated base unit, rather like a miniature cordless iron, a foam pad, two packs of colour strips and an instruction booklet.

To use the kit you plug in the base unit and switch on. You then lay your sheet of paper on the foam pad, place a colour strip over the top and slowly iron across it with the hot applicator.

When you peel the colour strip away only the area that has bonded to your printout stays behind, which means you can use the strip again and again until it is all used up. It's as simple as that, though a little practice is required to get a perfect result.

The colour strips are 65mmx220mm, which covers the full width of an A4 sheet, and lettering over 200pt high. They come in 72 colours including fluorescents and wonderful metallic finishes which really do have the most dramatic effect. There is even a colour strip in white which can be very useful if you want to work on a dark paper, but I haven't worked out what to use the black strip for yet.

My criticisms of Color Tag are that the kit seems to be very expensive for what you get. With a bit of trial and error you could probably get the system to work with a domestic iron and a mouse mat.

Having paid the full price for mine, I haven't tried. My only other criticism is that Letraset can't spell colour.

Colin Thompson

Tripad Graphics Tablet

Supplier: Klein Computer
Tel: (+49) 6142 811 31
Price: £150 + VAT (subject to exchange rate)

A graphics tablet is a hardware add-on designed to work in complement with your mouse or roller ball, and Klein Computer's TriPad is just that, working on the standard principle of an electro-magnetically sensitive grid.

The grid is able to evaluate the position of an electromagnetic coil upon, or just above, its surface to a very high accuracy (or resolution) and translate that to a pointer position on the screen.

The oversize A4 tablet has a resolution of 3200x2400. This means that using either the TriPad 'mouse' or the interchangeable 'stylus', you can accurately position the screen cursor on any pixel in an unlikely screen mode of



3200x2400 pixels. This level of resolution enables pixel-accurate cursor movement in a fraction of the total tablet area. A configure option allows the position and size of the desired tablet area to be defined and saved. The tablet gave perfectly smooth, uninterrupted cursor/pointer control, even up to a centimetre or two above the surface of the board. With the number of frustration-induced rages I have had with my dodgy mouse and mouse mat that works better upside down, the TriPad felt uncommonly good.

Mouse control, as facilitated by the TriPad, is most useful in the area of design, like when painting a line or retouching an image. In vector graphics, points could be placed and objects moved precisely and with exceptional ease.

Using a tablet is also the only effective way to trace or draw in freehand – drawing is as easy as putting pen to paper. In fact the plastic tip of the stylus can be changed for a pencil lead so you can draw on paper and see an identical image on screen.

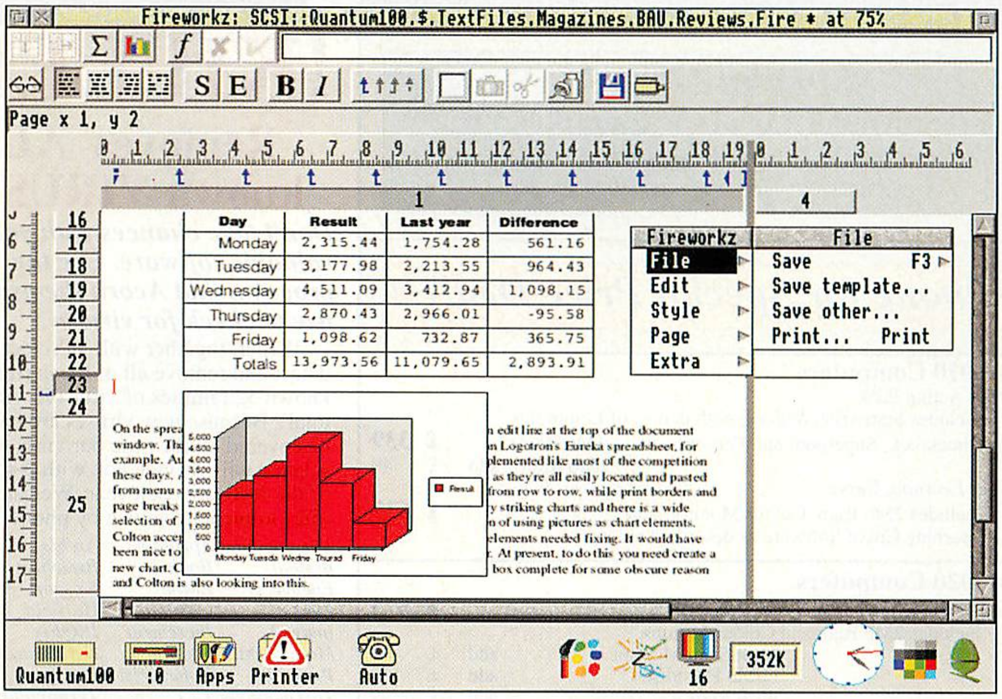
It is now invaluable in my design and art work but I do have some reservations. These include product quality (the newly-boxed tablet looked well-used), software bugs, such as scrolling problems when dragging objects to the extremities of windows, and the fact that with the stylus you have to use your mouse at the same time (the stylus has only one awkward 'mouse button').

On top of all that, unless you are fluent in German you are up against an ominous language barrier, as not one word of the current manual or software is in English. I hope, that in the future, similarly-priced but better-finished tablets will appear.

Jack Kreindler

The sum of the partz

Ian Burley takes a look at Colton's latest integrated package, Fireworkz



On paper, Colton Software's *Fireworkz* is one of the most versatile applications available. The latest in Colton's line of combined word processor and spreadsheet solutions claims to eliminate all of the compromises which tended to hinder the power of Colton's original winner, *Pipedream*. Colton has reinvented the wheel, but how well does it go?

Pipedream was really a spreadsheet with added word processor functionality. It was innovative and powerful but, to say the least, a rather quirky compromise. So Colton decided to start from scratch and create a complete family of integrated applications including a word processor, spreadsheet and database.

Wordz was the first to emerge (see review in May 1993) followed by *Resultz* (see July 1993).

Two into one goes

The next logical stage was to merge *Wordz* and *Resultz* and this was done to create *Fireworkz*. Now we have the full range of word processor and spreadsheet functions offered separately by *Wordz* and *Resultz* plus the ability to paste live spreadsheet data into one document and change its formulae and numeric results using hot links from another *Fireworkz* document. *Fireworkz* retains most of the individual attractions of *Resultz* and *Wordz* without compromising any functionality in the way *Pipedream* was forced to. *Fireworkz* is also very efficient on memory usage; 896K is used initially, nearly half the memory required for *Wordz* and *Resultz* loaded together. *Fireworkz* works comfortably on a 2Mb machine.

On paper, *Fireworkz* looks great, but just how good is it in use? As with *Resultz* and *Wordz* before, layered styles can be applied to any highlighted region from a single character to the whole document.

On-screen clutter is minimised through the use of layered dialogue boxes; in other words a dialogue box lists all its subsidiary boxes. Hit the radio button associated with one of these boxes and the box contents changes to that of the selected box.

Fireworkz uses a small selection of button bar tools and later in the year a user-defined button builder will be added to work in conjunction with *Fireworkz* macros. Headers and footers are implemented and there is full control over margins and tabulation.

Since I last looked at *Wordz* last year, screen inertia seems to have reduced but the editing area still blanks distractingly when a word wrap happens, promised drag and drop editing still hasn't arrived and there is still no prospect of more advanced features like footnotes and outlining. It's also still not possible to select a single line using a triple mouse click.

The spelling dictionary is very good, but these days people are starting to expect a thesaurus to be included as standard. An undo function would also be a welcome addition. *Draw* and *Paint* objects can be pasted into documents, moved about and resized, though dragging objects around looks visibly taxing. *Artworks* support is on the way.

On the spreadsheet side you can actually edit data in a cell or use an edit line at the top of the document window. There isn't a separate floating edit window, like in Longman Logotron's *Eureka* spreadsheet, for example. Auto-summing and range selection using the mouse is implemented like most of the competition these days. As is the trend, you don't need to type in sheet functions as they're all easily located and pasted from menu selections. Column widths can be varied independently from row to row, while print borders and page breaks are shown.

Fireworkz is capable of producing some very striking charts and there is a wide selection of chart types with 3D options and overlays with the option of using pictures as chart elements. Colton accept that problems we had with pointer-selecting graph elements needed fixing. Chart boxes also appeared without the bottom line of the box complete for some obscure reason and Colton is also looking into this.

Overall, *Fireworkz* is highly recommended, if slightly rough around the edges. But that said, it's a huge improvement over *Pipedream*. Whether *Fireworkz* is a better spreadsheet than *Eureka* or *Schema 2*, or a better word processor than *Impression Style* or *EasiWriter*, is really down to personal preferences. But *Fireworkz* has that unique feature of combining the best of both worlds to give it a vital edge. Upgrades from *Wordz* and *Resultz* are at the higher end of what I'd expect, though if you have both, the upgrade is free.

Product details

Product: Fireworkz
Supplier: Colton Software
Tel: (0223) 311881
Price: £149 + VAT
Upgrade prices: Wordz, £70 + VAT; Resultz, £79 + VAT; Pipedream 4, £99 + VAT

PINEAPPLE SOFTWARE

Special Offer!!

Free membership of the Pineapple Virus Protection Scheme is included with every computer purchased from us.

!!Phone for Special Price Deals!!

A3010 Computers

A3010 Action Pack			
Includes Startwrite, & Zool, with demos of Lemmings, Chuckrock, Superpool and Fervour	1Mb Ram		£ 339
	2Mb Ram	add	£ 49
A3010 Learning Curve			
Includes 2Mb Ram, Colour Monitor, and Learning Curve Software as described below			£ 637

A3020 Computers

A3020 System			£ 675
Includes 2Mb Ram and Colour Monitor			
	MultiScan Monitor	add	£ 42
	60Mb Harddisc	add	£ 150
	4Mb Ram	add	£ 99

A4000 Computers

A4000 HD80 System			£ 850
Includes 2Mb Ram, 80Mb Harddisc and Colour Monitor			
	Multiscan Monitor	add	£ 42
	4Mb Ram	add	£ 99
	386 PC Card with 1Mb	add	£ 225
	486 PC Card with 4Mb	add	£ 425
	Learning Curve (See below)	add	£ 42
	Home Office (See below)	add	£ 85

A5000 Computers

A5000 2M HD80 System			£1275
Includes 2Mb Ram, 80Mb Harddisc and Multiscan Monitor			
	4Mb Ram	add	£ 129
	4Mb + 164Mb HD	add	£ 170
	Learning Curve (See below)	add	£ 42
	Home Office (See below)	add	£ 85
A5000 ES - Econet System			£1175
Includes 2Mb Ram, MultiScan Monitor and Econet			
A5000 NS - Network System			£1275
Includes 2Mb Ram, MultiScan Monitor and Ethernet			

Learning Curve System

The Learning Curve System can be purchased with the A3010, A4000 or A5000 range of computers. It consists of an audio instruction tape and software including,- Acorn Advance, PC emulator, & Demos of Rhapsody2 Scoredraw, Voxbox, Fervour, Darryl the Dragon, Topography, smArt, The Crystal Rainforest, Naughty Stories and Arcventure.

Home Office System

The Home Office System can be purchased with the A4000 or A5000. It consists of an audio instruction tape and software including,- EasiWriter, Datapower, Pipedream 4, PC Emulator & Demos of Prophet and Almanac.

A4 Portable Computer

A4 2M FD System	Includes 2Mb Ram	£1399
A4 4M HD 60 System	Includes 4Mb Ram and 60Mb HD	£1699

Special COLOUR PRINTER Offer - BJC600

The latest in colour printer technology from Canon

Price includes a second set of ink cartridges **£480**

Other Items

All Acorn hardware and upgrades are normally available, please 'phone for prices. Many other printers and software items are also available.

Most items ordered before 4.30 sent by RETURN post

Acorn Authorised Dealer

!KILLER

Removes ALL known VIRUSES



Don't take chances with your valuable software. Use the program that Acorn themselves use to check for viruses.

!Killer, together with VProtect will detect and remove all of the currently known 52 families of virus (75 viruses in total). Because new viruses are being discovered all the time our virus protection scheme will provide you with 3-4 updates of the software each year. We can also offer immediate advice by phone.

Alien	*Aprilfool*	*Archie*	*Arcuebus*	*Axishack*	*BBCEconet*
Bigfoot	*Boohoo*	*Breakfast*	*CeBit*	*Code*	*DieHard*
Ebeneezer	*EMod*	*Ex_port*	*Extend*	*ExtendV2*	*FCodex*
Funky	*Garfield_I*	*Garfield_W*	*Handler*	*Icon*	*Image*
Image2	*Increment*	*IRQFix*	*Link*	*Mode87*	*Module*
MonitorDat	*MyMod*	*NetManager*	*NetStatus*	*NewDesk*	*Parasite*
Penicillin	*Poltergeist*	*Runopt*	*Shy*	*Sprite*	*SpriteUtils*
Taskmanager	*T2*	*Terminator*	*Thanatos*	*TrapHandler*	*Valid*
VanDamme	*Vigay*	*Whoops*	*Wimpman*		

Don't wait until you discover you have a virus!
One years subscription costs just £24.00

Low cost school and county licences available

Pineapple Colour Video Digitiser

Full colour video digitising is made easy with our very popular digitiser. The software features are still second to none and the hardware will now work with even the A3000/4000 series of computers using our MEA/2 adapter board.

Apart from all the normal features you expect from a digitiser, the Pineapple Digitiser will grab a sequence of video frames and replay them - even while still watching the incoming video!

The standard digitiser occupies a double width expansion slot, but the boxed version which is essential for A3000/4000 computers can also be used with A300/400/500 series computers where it will only occupy one expansion slot.

A300/400/500	£199.00
A3000 boxed	£235.00
A3010/3020/4000 boxed inc. MEA/2	£260.00

Internal / External Expansion Adapter

This adapter fits the A3010, A3020 & A4000 computers, providing a 64 pin expansion socket similar to the A3000. In the case of the A3000 two expansion slots can be obtained. This enables external devices such as our video digitiser to work with A3010, A3020 and A4000 computers.

MEA /2 £28.00

Pineapple PAL Coder

The Pineapple PAL Coder is a stand alone unit which provides a coded signal which can be recorded onto VHS or fed to any monitor or TV set with a coded input. The unit is inserted in the lead to the RGB monitor and provides an RGB output for the monitor together with a PAL coded output on a BNC socket. A second version also provides an output in S-VHS format as well as composite. Now available for Multiscan as well as standard monitors. Upgrade available for existing owners.

Standard Version £69.00 S-VHS £79.00

Terms:- Please add 17.5% vat.
Carriage FREE to mainland UK.
Phone for quote outside UK.
Official orders, cheques, and all major credit cards accepted.
Money back guarantee on all products

Pineapple Software
39, Brownlea Gardens
Seven Kings
Ilford, Essex
IG3 9NL

Telephone Hot Line service on all products
Tel 081 599 1476 Fax 081 598 2343

LETTERS

DOWN TO BUSINESS

I was interested to read the letter 'Acorn Business User' in December's issue. I understand that the question 'Yes, but does it run *WordPerfect?*' is irrelevant when applied to Acorn machines.

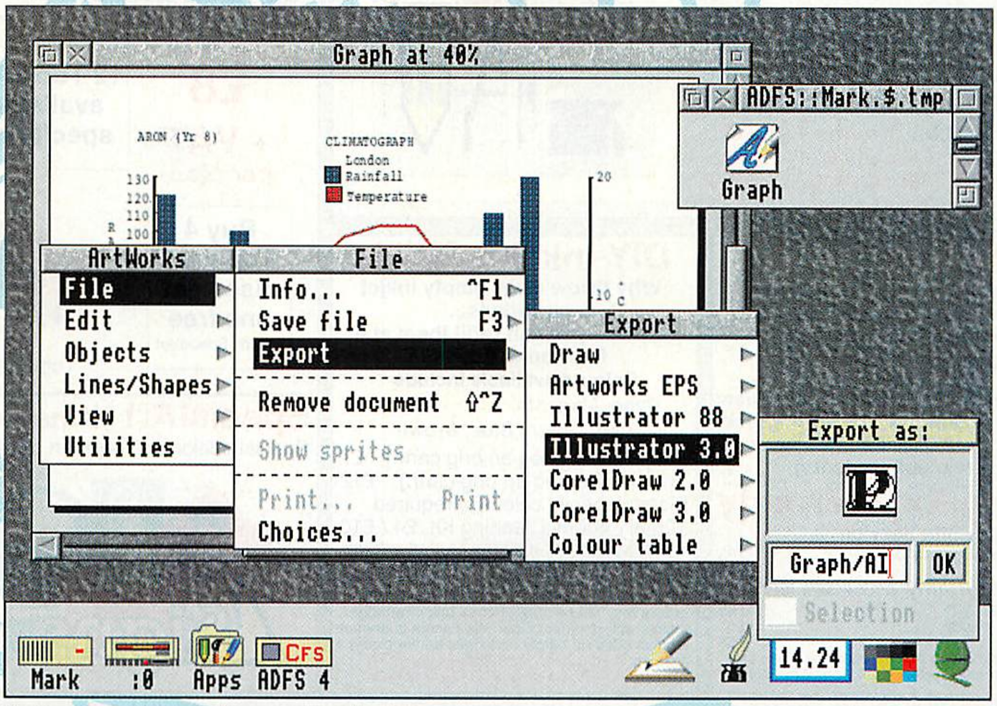
However, while some Acorn packages will accept mainstream file formats, are there any technical or legal reasons why the same packages cannot output these same formats, or indeed why no-one has written a suite of programs similar to *Apple File Exchange* on the Macintosh?

In fact, hasn't Acorn got its priorities wrong by relying on a PC Emulator to enable its machines to communicate with the real world?

PC emulation which runs at a fraction of the speed of a real PC, and which cannot even run *Windows*, is not PC emulation. For most purposes, however, file conversion would get the same *end* result as using PC emulation, but without having to leave the Risc OS environment.

Aidan Emery
London

I couldn't agree with you more. We might never be able to break the stranglehold that PCs have on the business market, but a decent suite of file conversion programs would be a huge step to commercial recognition. Anyone fancy having a go?



If only more packages had save options like this

FAN OF FROG

Alice Smith, in her review of *Flossy the Frog*, mentioned that she was unable to get out of the spaceship into the kitchen because we had provided insufficient help. Please ask her to write out 100 times this line from the notes: 'to go to the kitchen, click on the map on the desk.'

She thought the storyline lacked strength and the narrative not particularly engaging. Perhaps this is because Flossy isn't a story and the vocabulary is more suited to the requirements of Key Stage 1 children than adult reviewers. By stating that the program can 'lead to loops', I assume she meant that instead of presenting Flossy in a mind-numbing, page-turning format, we have allowed kids to get back to the beginning via different routes.

Her assertion that the program was only *slightly* bizarre was hurtful: Hans Rijnen, the artist, assures me he can pick up a little something in Amsterdam to make our next release really OTT!

Alice is not the first person who has voiced doubts about Flossy's qualities. A teacher wrote to complain: 'I have withdrawn Flossy as I felt it was affecting the children's morals. Is the rocket a phallic symbol, and where does Hissing Sid, the Psychotic Snake, fit in? However, the children still love it and even insist on playing it in preference to some bona fide games.'

Mike Matson
4Mation

MORE PRICE MOANS

In the October issue I read a letter from J George and I happen to agree with him about the high price of software.

We all know that games and other software are being pirated and of course software companies are not pleased. But is there one good reason why this piracy goes on? Yes, there is: software is priced much too high.

Don't you agree? If not, how about this: let's say some unscrupulous user can get hold of an illegal copy of a piece of software for £2 and the original costs £35. Which copy would you expect them to buy? The original for £35? I don't think so. Unfortunately, there is a problem with the illegal copy: there's no manual.

Now consider another example. Let's say the price of the illegal copy is £2 and the original costs £10. Now, which copy would you expect them to buy now? Well, I know which I'd buy: the original one.

So here's my question: would software companies go broke if they lowered their prices, or are they just being greedy?

J D Kristbjörnsson
Iceland

Just a little bit contentious, this one. It never ceases to amaze me how people assume that a piece of software should cost little more than the price of the discs, the box and the manual.

Imagine the amount of money spent on developing a large product like *Artworks.* Imagine how long it takes to write a really good manual, to print hundreds of boxes and manuals, and to duplicate the discs. All before seeing a penny for your efforts.

No, I don't think software is overpriced at all. It's no coincidence that most PD authors are still in full-time education: they don't have to earn a living from selling their software. Software houses do, and I think they're more than entitled to charge these prices.

Drop us a line at Acorn User, Europress Enterprise Ltd, Europa House, Adlington Park, Macclesfield SK10 4NP

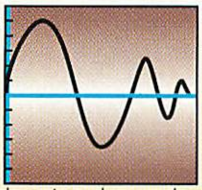
Opening Hours Monday-Saturday 10.00 to 18.00hrs

QuickShow £25+VAT

!QuickShow *Video Titling* & **Slide Show Presentation** **Has never been easier!**

The easy to use slide show presentation and video titling package. Create sequences of frames containing text of any colour with drop shadows, outline shadows and rubout boxes using the RISCOS fonts. Sprites can also be included in frames and positioned and resized as necessary. Several screens can be linked together with the sequencer which allows you to fade each screen out and in with the many fades provided. Completed sequences can be converted into stand alone applications. 2Mb RAM required and a hard disc is recommended.

QuickSnd £10+VAT



Load, play, convert & resave existing Armadeus, Tracker and raw data sound samples and apply special effects including Reverse, Echo, Max Vol, alter replay rate and resample frequency. Convert samples into modules for use with the RISCOS sound system etc. Create stand alone Utility modules which when called, via star commands, automatically play and then remove itself completely from memory (this feature is not available on any other sound package). Use Utility sound modules with RISCOS Alarm to play on activation of an alarm. On screen VU meter included.

Magneto Optical Drives (SCSI)

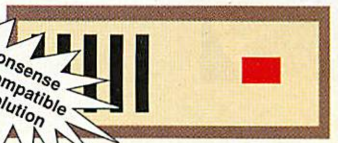
128Mb Magneto Optical SCSI Drive 28ms 1" high	**£549**
The above unit is a bare drive and can be mounted in the spare floppy bay of an A5000 or in an external case for other machines. SCSI interface extra.	
External case for above	£69
128Mb Blank Discs	**£35**
A5000 Econet SCSI Interface	**£49**

CD-ROM Multimedia

External Toshiba CD-ROM Drive (The fastest avail./Caddy loading)	**£399**
The above drive is a PhotoCD compatible 150/300/330kb/s speed unit with 200ms access time. C/W case and power supply and one caddy.	
External Toshiba CD-ROM Drive (Twin spin speed/Tray loading)	**£319**
As above but tray loading with 150/300kb/s speeds and 350ms access time.	
Acorn Multimedia Expansion System	**£499**
A4000 style case complete with power supply, SONY multi-session CD-ROM drive, pre-amp with headphone/phono inputs/outputs, CD caddy, etc.	

Add £139 to above prices for Morley SCSI Interface.

Hard Discs



The no nonsense RISCOS 3 compatible HardDisc solution

IDE

The following are complete systems comprising of the Desktop Projects IDE interface, hard disc, mounting bracket, cables, utilities disc and manual. **RISCOS 3.10 or later required.**

Archimedes 3.5" Internal
Not suitable for A3000, A3010 & A3020.

40Mb 16ms Cache	£150
250Mb 13ms Cache	£289
330Mb 12ms Cache	£399
520Mb 12ms Cache	£549

A3000/Archimedes External

40Mb 16ms Cache	£235
250Mb 13ms Cache	£375
330Mb 12ms Cache	£485
520Mb 12ms Cache	£685

A5000 Second Drives
For A5000's only.

170Mb 11ms Cache	£200
250Mb 15ms Cache	£219
330Mb 12ms Cache	£329
520Mb 12ms Cache	£479

DTP IDE Disc Controller **£65**
Complete with cable, guide & disc Works with Conner, Quantum Samsung, Maxtor & Fujitsu.

HCCS A3000 IDE Hard Cards

20Mb Internal+User Port	£179
80Mb Internal+User Port	£309
120Mb Internal+User Port	£369

HCCS Ultimate Multi-Podules With IDE Hard Disc

	A3000	A3010
20Mb Internal	£229	£222
80Mb Internal	£349	£339

2 Multipodule slots are provided on the A3010 and 3 slots on A3000

SCSI

The following are complete hard disc systems comprising of a Morley SCSI uncached interface, hard disc, brackets, cables, utilities disc and manual.

Archimedes Internal
Not suitable for A3k,A3010-A3020

120Mb 18ms Cache	£319
200Mb 18ms Cache	£409
330Mb 12ms Cache	£Call
520Mb 12ms Cache	£Call

A3000/Archi/A5000 External

120Mb 18ms Cache	£399
200Mb 18ms Cache	£489
330Mb 12ms Cache	£Call
520Mb 12ms Cache	£Call

The above are ext units with card.

SCSI Controller Cards

Morley Uncached	£139
Morley Cached	£179

Acorn Software for all 32-bit RISCOS Computers

Applications

ABC Compiler (Oak)	£85
Advance (Acorn) **2Mb/RO3**	£95
Almanac3 (Stallion)	**£67**
Ancestry (Minerva)	£59
Arc DFS (Dabs)	£22
ArcComm2 (Logotron)	£52
ArcLight (Ace)	£55
ArcTerm 7 (Serial Port)	£62
Armadeus (Clares)	£65
Artisan 2 (Clares)	£49
Art Works (CC)	**£129**
With free TopicArt disc	
AudioWorks (CC)	**£48**
AUN/Level 4 FileServer (Acorn)	£395
Cable News (Lingenuity)	£135
CADet (Minerva)	£135
Chameleon 2 (4Mation)	£35
ColourSep (ICS)	£15
Compression (CC)	£35
DataPower (IOTA)	£129
Desktop Assembler (Acorn)	£119
Desktop C (Acorn)	£180
Desktop Office (Minerva)	£85
Desktop Thesaurus (RISC Dev)	£19
Desktop Tracker (Vert Twist)	£52
Digital Symphony (Oregan)	£41
Draw Print-Plot (Oak)	£39
Euclid 2 (Ace)	£85
Eureka v2 (Longman)	**£99**
FireWorkz (Colton)	**£129**
Font FX (DataStore)	£9
Gammaplot (Minerva)	£36
Genesis 2 (Oak Solutions)	£109
Graphbox v2 (Minerva)	£57
Graphbox Pro (Minerva)	£104
Hard Disc Companion II(RISC)	£45
Hatchback (4mation)	£35
Hearsay II (RISC Dev)	£75
Hotlink Presenter (Lingenuity)	£41
Home Accounts (Minerva)	£34
Illusionist (Clares)	£79
Image Animator (IOTA)	**£59**
Image Outliner (IOTA)	**£72**
Impression II (CC)	**£125**
- Includes free upgrade to Publisher	
Impression Publisher (CC)	**£159**
Impression Style (CC)	**£95**
Free TopicArt disc with Impression	
Impression Bus Supp (CC)	£39
Inter-Sheet II (CC)	£30
Investigator 3 (Vert Twist)	**£48**
MasterFile III (RISC Dev)	£47
Midnight Express (Mid. Graph.)	£39
Mogul (Ace)	£26
Morpheus (Oregen)	**£28**
Notate (Longman)	£54
Night Sky (Clares)	**£67**
Ovation (RISC Dev)	£95
PC Emulator (Acorn)	£95
PenDown Plus (Longman)	£68
Pin Point (Logotron)	£79
PipeDream 4 (Colton)	£119
Playback (RISC Dev)	£17
Poster (4Mation)	£75
Presenter 2 Hotlink (Lingenuity)	£33
Presenter GTi (Ling)	£66
Pro Artisan (Clares)	£79
ProArtisan2 (Clares)	**£109**
ProDriver HP (Oak)	£37
Prophet (Apricote)	**£145**
RemoteFS (Atomwide)	£45
Render Bender v2 (Clares)	£99
Resultz (Colton)	**£97**
Revelation ImagrPro (Logotron)	£127
Rhapsody v2 (Clares)	£49
Rhapsody v3 (Clares)	£79
RISCType (CIS)	£16
Rythmn Bed (Clares)	£40
S-Base2 Personal (Longman)	**£120**
S-Base 2 Developer (Longman)	£225
Serenade (Clares)	£109
ShapeFX (Datastore)	£9
ShowPage (CC)	£130
Sleuth (RISC Dev)	**£47**
Snippet (4Mation)	£35
Sound FX Maker (CIS)	£32
Speech! (Superior)	£15
Splice (Ace)	£35
Squirrel 2 Database (Dig Serv)	**£130**
Squirrel 'C' Developers Toolkit	£99
TechWriter (Icon)	£159
Titler (Clares)	£119
Topogropher (Clares)	£69
Touch Type (IOTA)	£39
TurboDriver Canon BJ/BJC (CC)	**£42**
TurboDrivers HP (CC)	**£42**
Turbo-Type (CIS)	£20
Tween (Ace)	£35
TypeStudio (RISC Dev)	£43
Vector (4Mation)	£75
Vox Box (Clares)	£49
WordWorks (CC)	**£38**
Wordz (Colton)	**£77**
Worra CAD (Oak)	£83

Items in red are New/Low price
2Mb - Minimum RAM required
RO3 - RiscOS3.10 or later require
LS - Limited Stocks

Games

A3010 Stick Controller (Arm-T)	**£17**
Aggressor (Atomic)	£19
Air Supremacy (Superior)	£17
Alderbaran (Evolution)	£26
Axis (TBA Software)	£19
Blitz & Bambuzle (Arxe Systems)	£19
Battle Chess (Krisalis)	£22
Birds of War (4D) 2Mb	**£25**
Black Angel (4D)	£25
Blood Sport (Matt Black)	**£12**
Boogie Buggy (4D) **LS**	£12
Break 147 & Superpool (4D)	£25
Bug Hunt in Space (Minerva)	£12
Carnage Inc (4D)	**£18**
Cataclysm (4D) **LS**	£12
Champions (Krisalis)	**£22**
-Includes Man Utd, J Khan Squash,	
-Wld Class Leaderbrd & Boxing Mngr	
Chocks 2 Compendium (4D) **2Mb**	£25
Chocks Away Extra Miss(4D)	£15
Chopper Force (4D)	£25
Chuck Rock (Krisalis)	£19
The Crystal Maze (Sherston)	**£30**
Cyber Chess (4D)	£25
Cycloids (Software 42)	£19
Cygnus Collection	**£22**
- Includes Twin World, Iron Lord	
- & Tower of Babel	
Demon's Lair (4D) 2Mb	**£18**
Dreadnoughts (Turcan)	£26
Dungeon (4D) **2Mb**	£25
Elite (Hybrid)	£32
Enter the Realm (4D) **2Mb**	£18
E-Type Compendium (4D)	£18
Exotic Adv of Sylvia Lane (4D)	**£18**
Fervour (Clares)	£19
FRED (Gamesware)	£17
Games Wizard (Leading Edge)	£21
GODS (Krisalis)	£19
Guile (Dream)	£22
Haunted House (4D) 2Mb	**£18**
Heimdall (Krisalis) 2Mb	**£22**
Hero Quest (Krisalis)	£22
Holed Out Compendium (4D)	£18
Ixion (Gamesware)	£19
James Pond (Krisalis)	£19
James Pond 2 RoboCod (G/W)	**£22**
Kerbang (Eterna) **LS**	£12
Krisalis Collection	**£22**
-Includes, Mad Professor Mariarty,	
-Pipemania, Terramex & Revelation	
K.V. (High Risc)	**£13**
Last Ninja (Superior)	£19
Lemmings (Krisalis)	£19
Lemmings 2 Tribes 2Mb (Kris)	**£24**
Lotus Turbo Challenge II (Kris)	£19
Magic Pockets (Renegade)	**£20**
Mah-Jong Patience (CIS)	£15
Mah-Jong The Game (CIS)	£19
Man United Europe (Krisalis)	£19
Micro Drive World Edition (CIS)	£26
Mig-29 Fulcrum (Krisalis)	£TBA
Nebulus (Krisalis)	£19
Oh No More Lemmings (Kris)	£15
Omar Sharif's Bridge (Krisalis)	£22
Pacmania (Krisalis)	£10
Pandora's Box (4D) **2Mb**	£18
Pesky Muskrats (Coin-Age) **LS**	£12
Play It Again Sam1 (Superior)	£19
-Includes Conqueror, Rotor,	
-No Excuses & Hostages	
Play It Again Sam2 (Superior)	**£20**
- Includes Zarch, ArcPinball,	
- Master Break & Repton 2	
Play It Again Sam 3 (Superior)	**£20**
Populus (Krisalis)	£22
Powermonger (Krisalis)	**£23**
Quark (Oregan)	£19
Quest for Gold (Krisalis) **LS**	£12
Repton 3 (Superior)	£19
Repton 4 (Superior)	£19
Real McCoy 2 (4D) **2Mb**	£25
-Includes Apocalypse, Holed Out,	
-The Olympics & Inertia	
Real McCoy 3 (4D) **2Mb**	£25
-Includes Powerband, Nevryon,	
- Drop Ship & The WIMP Game	
Real McCoy 4 (4D) 2Mb	**£25**
-Includes Galactic Dan, Grievous	
-Bodily 'ARM, Cataclysm & X-Fire	
Saloon Cars Deluxe (4D)	£25
Saloon Cars Del Extra Courses	£15
Sensible Soccer (Renegade)	**£20**
Sim City (Krisalis)	£22
Simon the Sorcerer (Games/W)	**£31**
Small (Virgo)	**£19**
Spheres of Chaos (Matt Black)	£19
Stunt Racer 2000 (4D)	**£25**
SWIV (Krisalis)	£10
Technodream (Superior)	£19
ThunderMonk (Minerva)	£15
Tiles (Brain Games) **LS**	£12
Trivial Pursuit (Krisalis)	£TBA
Virtual Golf (4D) **2Mb**	£25
Waterloo (Turcan)	£19
X-FIRE (4D) **LS**	£12
Xenon2 (Gamesware)	**£20**
Zool (Gremlin Graphics)	£19

Education

Adv. Playground 5+ (Storm)	£17
Amazing Ollie 4+ (Storm)	£14
Arcventure I-Romans 8-9	**£28**
Arcventure II-Eqyptians 10-12	**£28**
Arcventure III-Vikings 10-12	**£28**
Aztecs (Sherston)	**£37**
Badger Trails (Sherston)	**£37**
Coffee 9+ (Storm)	£28
Crossword+ 8+	£19
Crystal Rainforest (Sherston)	**£35**
Darryl the Dragon (4Mation)	**£19**
Desktop Folio (ESM)	£89
Farmer Giles 2 (CTS)	£17
FirstLOGO (Longman)	**£22**
First Words & Pictures (Chk)	£26
Flight Path 9+ (Storm)	£28
Freddy Teddy (Topologika)	£19
Freddy Teddy's Adv (Topol.)	£17
Fun & Games 5-9	£18
Fun School 2 (Database)	£15
Fun School 3 (Database)	£18
Fun School 4 (Database)	**£18**
(Please spec. age group <5, 5-7, >7)	
Giant Killer (Topologika)	£17
Granny's Garden (4Mation)	**£23**
House of Numbers (Chalk)	£19
Kid Pix (ESM)	**£37**
Magpie (Logotron)	£49
Maps & Landsc. 1/2 (Chk) ea.	£19
Nature Park Adventure 7-9	**£27**
Naughty Stories (Sherston) ea.	**£10**
Naughty Stories v1 set of 6 (Sh)	**£48**
Naughty Stories v2 set of 6 (Sh)	**£48**
Noddy's Playtime (JB) 2Mb	**£20**
Numbers and Pictures (Chalk)	£18
Ollie Octupus Sketch Pad (Storm)	£14
Pin Point Junior (Logotron)	**£23**
Pirate (Chalk)	£18
Puncman 1-2,3-4,5-7 (Chalk) ea.	£18
Smudge the Spaniel (Storm) 4-8	**£22**
Spellbook 4-9 (Soft Stuff (SS))	£19
Splash 7-11yrs (Sherston)	**£19**
10/10 Dinosaurs (all ages)	**£19**
10/10 Early Essentials <7yr	**£19**
10/10 English 6-16yrs	**£19**
10/10 French 6-16yrs	**£19**
10/10 Jr Essentials >7yr 2Mb	**£19**
10/10 Maths (Number) 6-16yrs	**£19**
10/10 Maths (Algebra) 6-16yrs	**£19**
Things to do with No's (SS)	£19
Things to do with Words (SS)	£19
Wizard's Revenge 9-11	**£20**
Words and Pictures (Chalk)	£18

Please call for titles not listed

Registered Squirrel Dealer

Desktop Projects Ltd

Please contact us if you are offered a better price elsewhere, we will do our best to match it.
We operate the Acorn Teachers Scheme. Special offers do not apply to Finance and Acorn Assist Scheme.
This document was produced entirely on the Archimedes using Impression, ArtWorks, Draw & Paint.

All prices exclude VAT

Tel: 061-474 0778

Access VISA SWITCH

MAR94



FREE ADS

• A3000, 4Mb, Risc OS 3.1, with manuals and discs, no monitor, £350 ono. Tel: (0684) 573098

• Master 128, twin 40/80 track disc drive, Overview, Wordwise, Interword plus others. Joystick, manuals and discs, £230 ono. Tel: (0482) 666293

• A3000, 2Mb, Risc OS 3.1, extra disc drive interface, colour monitor and stand, software, excellent condition, £500 ono. Tel: (0742) 682353

• Masterfile 3, unwanted gift, never used, £40 ono. BBC Z80 second processor, manuals, discs etc, little used, £35. Tel: (0634) 852094

• Arc A310, 1Mb Ram + monitor. Also Saloon Cars v1, £10. Tel; (0662) 671487

• Acorn A5000, m/sync, 40Mb HD, 4Mb Ram, RTFM joystick interface, light home use, mint condition, £950. Tel: (0236) 821566

• Pipedream 3, £25. tel: (0254) 886371

• Acorn Electron with Plus 1 cartridge expansion (with Lisp cartridge), 2 joysticks, £175 worth of cassette software (40 titles), original manuals, good condition, only £75. Tel: (0302) 864171 after 6pm

• Master 512K, PC DOS, Basic, Microvitec monitor, Acorn 5.25in twin disc drives, Star LC10 printer, mouse, joysticks, games, business sofware, manuals, boxed, £450. Tel: (0283) 713967

• Software for Archimedes: Cambridge Pascal, DeskEdit, Elite, Compression & Apocalypse, £30 for all (excl p&p). Tel: (0532) 439736 after 6pm

• Games: swap or possible sale of Chuck Rock, Grevious Bodily 'Arm, Chocks Away Extra Missions, Cataclysm, Drop Ship, Boogie Buggy, The Olympics, Powerband or Arctist. Tel: (0606) 882205

• A3000, 2Mb, Risc OS 3, Serial, 50Mb Oak SCSI external drive and interface, £500. Tel: (0382) 201707

• BBC B, colour monitor, disc drive tape data recorder, Wordwise Plus, InterSheet, DDFS Rom/Ram. Tel: (0225) 426275

• A5000LC, 2Mb, 40Mb HD, PC Soft, multiscan monitor, £975. Master 128, 3.5in drive, colour monitor, £350. Tel: 021-455 0795.

• Old Acorn User magazines 1984-1988. Send SAE for details to A Mackie, 7 Stonegate Drive, Pontefract, West Yorks WF8 4LT

• A3000, 2Mb Ram, £250. Epson LX-400, £50. But together £275. Tel: (0420) 84762

• Archimedes A310, Arm3, 4Mb Ram, 44Mb hard disc, Panasonic multisync monitor, super VIDC enhancer, manuals & software, £800. Without monitor, £625. Tel: (0773) 873611

• Wanted: user guide/manual for Toolkit Plus, realistic price paid. Tel: (0562) 824161

• A3000, 2Mb Ram, colour monitor and stand, excellent condition, £390. Tel: (0892) 546493

• Computer Concepts Scanlight 256 hand scanner with ScanLight Plus software (version 2), £90. Watford Electronics video digitiser and software, £50. Complete with packing and manuals. Tel: (0302) 722781

• BBC B, floppy + 20Mb hard drives in plinth, 32016 co-processor (1Mb Ram) with various language compilers, green monitor, £200. Tel; (0434) 606187

• Archimedes 310, colour monitor, dot matrix printer, joystick, Flying Start II, Pendown, lots of great games, £550. Tel: (0959) 534471 eves

• Swap my new CDTV (Amiga) for a basic A3000 without monitor or software. CDTV comes with CDs, 3.5in disc drive, keyboard, remote control etc. Tel: (0423) 883126

• BBC B, Opus Challenger 40/80 disc drive, Philips green monitor, Epson LX80 printer, View, ViewSheet Roms, games, books etc. Tel: (0734) 788584

• Roms for BBC B, Master or Compact. InterBase, £18. InterChart, £10. InterSheet, £12. Boxed with manuals. Tel: (0344) 422614

• BBC B, DFS, 40/80 twin disc drives, monitor, Rom board, InterSheet, InterWord, InterBase, Disc Doctor, Z80 2nd processor, software, manuals, spare discs, £175. Tel: (0785) 223951

• BBC Master, colour monitor, two drives, 512 board, 6502 co-processor, teletext adaptor, Music 500, lots of discs, books and other extras, £300 ono. Tel: 091-413 7551

• BBC B, 2x40T drives, sideways Ram/Rom, modem, speech synth, colour monitor, View, Comstar, all handbooks, £100, free to charity/school etc. Tel: (0962) 880671

• A3000 1Mb, 14in colour monitor. Software includes Karma and Populous. Good condition, £700 ono. Tel: (0865) 68930

• Electron, disc drive, printer/Rom/joystick interface for sale. Also wordprocessor and spreadsheet Roms, games, utilities, full documentation and more, £100. Tel: (0382) 825599 after 6pm

• BBC B+ 128K, Fidelity monitor, Watford 40/80 dual disc drive, Epson LX80 printer, mouse, Wordwise, Art, Spellchecker, two databases £300 or offer. Tel: (0483) 486221

• Wanted: instruction book, information, leads for Electron. I have the keyboard and mains adaptor only. Tel: (0635) 873128 after 8pm

• BBC B, two disc drives, Mega-3 Rom, Reply Rom, lots of software, games and serious, £160 ono.Tel: (0271) 78980

• Acorn A3000 1Mb Ram upgrade board, £15 ono. Saloon Cars, £10 ono. Tel: 081-805 5297

• Electron Acornsoft and Microdeal software. Also Beebug magazines for sale. Wanted: Rom spreadsheet and database for Slogger Rom box. Tel: (0483) 570658

• 1st Word Plus £12. Joystick interface (Vertical Twist) £15. Joysticks £9. Genesis £10. PC Emulator v1.4 £10. Easiwriter 2 (virtually brand new) £75. Tel: (0695) 421902

• BBC B Issue 7 DDFS, 32K sideways Ram, Rom board, ViewSheet, ViewStore, AMX mouse, joystick, 40/80T disc drive, £120. Tel: (0625) 431349

• Wanted: BBC text adventures. For sale: BBC arcade and board games on disc and cassette, £1, vgc. Tel: (0438) 352554 eves

• A5000 4Mb Ram, 100Mb Conner IDE HD, Panasync C1381 multisync monitor, £1395. DeskJet 500, £200. All immaculate condition, boxed, manuals etc. Tel: (0782) 771914

• Wanted urgently for Electron: PRES AP5. Also hard drive, PRES qtrmeg expansion cartridge, anything considered. Tel: (0239) 851678

• Wanted: Empty ink cartridges to fit Canon BJ-10 bubblejet printer (BC-01). Tel: (0494) 874298

• A3000, 4Mb Ram, 62Mb internal IDE drive, Risc OS 3.11, Aries 2000 colour monitor, cost £1500. Accept £895 ono (postage split)

• Original Archimedes boxed games. Swiv £8, Arcade soccer £6. Sporting triangles £6. Holed out with extra courses 1+2 £9. Tel: (0727) 853713

• Panasonic KX-P1124 printer plus paper and two tapes (used), £100. Tel: (0428) 713326 eves

• Wanted by student: Eprom programmer & driver software for BBC B. Any offers please contact (0532) 750041

• Archimedes software; Acorn DTP £40, Minerva GammaPlot 320, Minerva System Delta+ £30, MailShot (for SD+) £15, Nevryon £8, Powerband £8. Tel: (0737) 832159 eves

• Archimedes A420/1, 40Mb IdeA hard drive, Risc OS 3, PC Emulator 1.7, DOS 5, 1st Word

plus, Schema and lots more, £900. Tel: (0509) 261801

• Mega3 Rom £50 includes InterWord, InterSheet and InterChart. U nused, still in original box. Tel: 081-660 3797

• Acorn A440/1, 42Mb hard drive, 4Mb Ram, IDE interface, Atomwide VIDC Enhancer, CC Rom/Ram podule, Acorn DTP, First Wordl Plus, EType, Quest for Gold, £640. Tel: 031-666 1565

• Aleph One 386 PC Card with 4Mb Ram, maths co-processor and Acorn PC Emulator, £340. Hawk MkII digitiser, £95. Tel: (0279) 424139

• Wanted: Risc OS 2 Programmer's Reference Manuals. Tel: (0648) 34653

• Master 128K, colour monitor, double 40/80 track double-sided disc drive, Canon printer, View, spreadsheet, screenprint, all manuals, £350. Buyer collects from Broadstairs. Tel; (0843) 862816

• BBC Master 128K with 40/80 track disc drive, complete with Repton Infinity game, £110 ono. Tel: (0493) 330879 after 6pm

• A3000 2Mb, Acorn colour monitor, computer stand, original manuals plus Genesis 2, Grass, Interdictor 2, £650 ono. Tel: (0384) 638873

• Fourth Dimension games for sale, all below £15 plus p&p. Including Nevryon, Pandora's Box, Galactic Dan, Black Angel, Cataclysm, Saloon Cars etc. etc. Tel: (0742) 678317

• Boost your Master 128. Technomatic 30Mb hard disc, plug into 1MHz bus and go! £230. 6502 Turbo board £50. OverView £30. Tel: (0463) 240088 after 6pm

• A3000, 20Mb internal IDE hard drive (ICS), no bad sectors, £125 ovno. Tel: (0304) 380245

• S-Base user wants to contact other users to exchange ideas, routines, complaints and whatever with view to starting a user base. Write, enclosing SAE, to G Holroyd, 103 Felbrigge Road, Goodmayes, Ilford, Essex IG3 9XH

• Z80 2nd processor + range of CP/M software, manuals, all vgc, £75. Tel: Roger on (0895) 233909 daytime

• A3000, 62MB internal hard drive, serial upgrade, Aries 2000 colour monitor, Risc OS 3.11, as new, boxed, cost £1500, accept £875. Tel: (0304) 380245

• Econet SJ MDFS Fileserver with 20Mb hard disc. SJ tapestreamer and several 35Mb tapes. Tel: (0225) 464313

• Wanted for BBC micro: Teletext Editor Rom (TED), will pay good price with or without manual. Tel: (0942) 716296 anytime

• BBC Master, WE twin 40/80 disc drive, colour monitor, Epson printer, teletext receiver, many manuals, educational software, lots of games, Wordwise, Dumpout, £400. Tel: 081-998 2197

• A3000, 4Mb Ram, twin disc drive, colour monitor, mouse and joystick, Panasonic 24-pin printer, Pipedream 4, Impression Junior, WorraCAD, £600. Tel: (0733) 67474 x3143

• Scanner (ScanLight 256) brand new, never used, still boxed, £130. Tel: 071-226 4942

• View+ printer generator £20, Mini Office 2 £10, Pendown £10, AMX mouse, Super ART + Super Rom, new £20, etc. Tel: (0635) 47311

• Master 512 with Gem, manuals, 3.5in disc drive (needs mouse), £300. Tel: (0904) 768678 day, (0904) 792819 eves

• A440/1 with CC LaserDirect printer, spare drum kit, scanner with motor drive, Compression, Impression, lots of software. Sale only as complete set-up. Offers invited. Tel: 081-653 6075

• Star LC24-200 colour printer, boxed, excellent condition, 360dpi printing, dust cover, black and colour ribbons £200 ono. Tel: (0205) 722192

• Pipedream 4 for sale, £75. Tel: (0473) 830329

• Archimedes A420/1, 20Mb hard disc, loads of software including Nevryon, Interdictor 2, Powerband, Saloon Cars, Render Bender, DTP base £600, or Taxan multiscan £850. Tel: (0270) 663136

• A3000, 1Mb Ram, colour monitor, stand, original manuals, word processor and games, £550. Tel: (0389) 52905

• Archimedes A420/1, Risc OS 3, 4Mb, 40Mb disc, Philips colour monitor, 1st Word Plus, Acorn DTP, Genesis etc. As new, £980 ono. Tel; (0865) 510094 eves

• Tracker £20, A-Link £25, Acorn DTP £25, 1st Word Plus £18, Genesis Plus £15, Arc World discs April 92 - April 93, £1 each, Wonderland £10. Tel: 081-864 0309

• Acornsoft hits vol 1, Elite, Video titler, Fontstyle and 60 fonts, 60 5.25in discs, 100 disc case, al BBC, £15. Tel: 081-599 3545

• Reconditioned BBC B, dual 5.25in discs, software, Roms, £100. Viglan 20Mb hard disc £100. BBC B spares: all vgc. Tel: (0428) 658489

• A3000, 2Mb Ram, 20mb internal IDE, Risc OS 3.1, serial port, 10 boxed games, 50 PD/magazine discs, £499. Microvitec Cub3000 £99. Citizen Swift24 colour £99. Tel: (0993) 841583

• Master 128 with manual, Cumana 40/80 disc drive, colour monitor with Roms: InterWord, SpellMaster, Sheet, InterSheet, boxed with manuals, £165. Tel: (0474) 853534

• BBC B, Issue 7, 128K expansion, sideways & shadow Ram, Genie system & clock, 40/80 drive, DDFS, Roms: Interword, Dumpout, Stop Press, colour monitor, green screen, loads of software, £250 ono. Tel: (0532) 719822

• Games for sale: BBC discs, inc Fair means or foul, Sams and others. Archi: Real McCoy, Pon, Bambuzle, Nevryon, Fireball II. BBC £5, Arc £8-15. Tel: (0491) 835631

• BBC Master 128, co-pro 65C02, teletext adaptor, two drives, Eprom programmer + eraser, printer, spare PSU, joystick, many Roms, games, books, manuals, all for £385 or split. Tel: 071-722 0803

• Master Compact, twin 3.5in drives, manuals, Viglen cartridge, joystick, Epson LX800, £300 ono. Tel: (0695) 423497

• BBC B, disc drive, cassette, ram disc, mono monitor, sideways Ram, 2nd processors, other boards, Roms, plinth, software (games + business), mags, £200 ono. Tel: (0407) 810184 after 6pm

• BBC B, View, cartridged Sleuth, single d/s 40/80 track drive, colour monitor, Oak-faced desk, manuals etc. Only light home use. Offers for the lot? Tel: (0734) 402383

• Wanted: manual for Master Compact computer, reasonably priced. Tel: (0706) 817570

• Acorn DTP £10, 1st Word Plus v2 £10, Genesis+ £10, all in mint condition. BBC model B, software etc £50. Tel: (0746) 765812

• Have you finished Hero Quest? Will swap Zool for it. Tel; (0532) 782593 after 5pm

• 1st Word Plus v2 £25, Acorn DTP £30, also Hoverbod £5. Tel: (0823) 698613

• BBC B, 2 disc drives, joysticks + much more £250, Printer £80, GrafPad £70, Cassette games £2 each. Tel: 081-841 2550

• Canon LPB4 printer £350, LaserDirect HiRes card£190, Integrex Colourjet 132 printer £200, Beebug handscanner 400dpi £60. Tel: (0602) 756043

• Due to the huge backlog of free ads, there is no coupon this month. Please do not send in any ads until the coupon reappears: normal service will be resumed as soon as possible. Thank you.

GAME SHOW



Peaceful stuff from krisalis

If things go well, we'll soon be fighting a ground war, so choose a platoon of crack troops and get ready to send them into battle in one of 30 missions.

Krisalis Software has this month signed *Cannon Fodder*, Virgin's number one best seller on the Amiga over Christmas, and conversion to the Acorn platform will soon be underway.

Have you got what it takes to rescue the president from a crashed helicopter in the desert before the enemy's heat-seekers find him first? Can you ski to the scud missile factory without falling into a booby trap, run amok in a heavily occupied underground base and still have time to walk your babe along the sandy shore?

Sounds just like that Army advert with 'Frank', doesn't it? Maybe in the game we'll see Frank's head flushed down the toilet by his colleagues, like they never showed us on the telly...

Anyway, just like a real military big cheese, you give the orders in *Cannon Fodder* from the safety of the control room. You decide whether to send in a couple of soldiers or the whole bunch, you lay plans and make strategies. You also set the ambushes... or fall victim to them.

Cannon Fodder is a cross between the old Spectrum game *Commando* and the early Acorn game *Conqueror*. I can't wait!

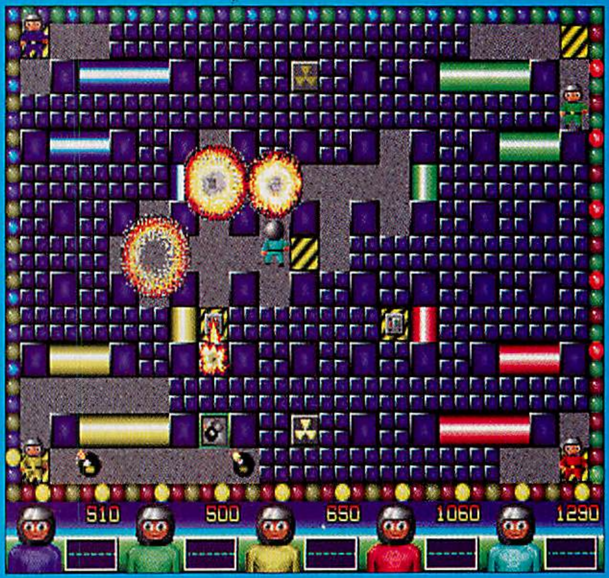
Next up from Krisalis is *Speedball 2*

Bowl-a-Droids

Some might describe my technique down the old ten-pin-bowling centre as similar in many ways to this game: explosive! They would of course, be completely wrong.

But in *Bowl-A-Droids* you roll little bombs down corridors and wait for the fuse to run out; any skittles nearby just get blown away. However, there are no skittles, only roaming droids and shiny crystals, scattered around a two dimensional maze.

It's all quite straightforward. The game is from a new company called Magnetic Image and costs £20, or £15 if you buy the demo for £2 first. Makes economic sense!



Corridor action with Bowl-a-droid

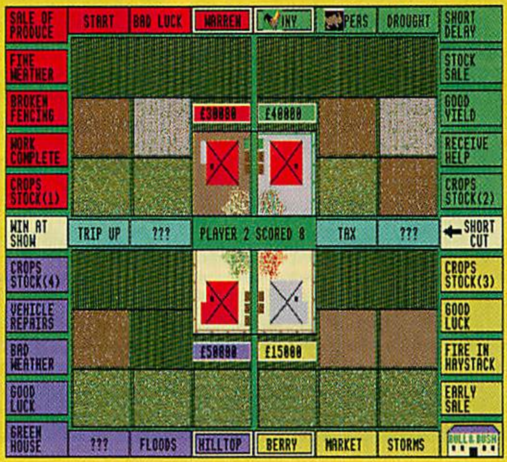
Farmonopoly – no plush hotels here

'Go to the manure store. Do not pass the farmhouse and do not collect £200'... is this what *Farmonopoly* is like? Land on Chance or Community Trough and get sent to the pig sty? Not exactly.

It's a computer board game, with two to four players, and the winner is the person who builds up the most valuable farm, including all the stock, crops and left over cash. You start with £200,000 but this goes fast when you start buying all them cows 'n' sheep 'n' things.

The squares on the board have all sorts of things on them, like 'drought', when you have to buy irrigation equipment, 'good yield', when you can flog your crops for a massive profit, and 'fire in haystack'... better than fire-in-farmer's-bed but not as good as some good farmhouse nosh. There's even a camper's square: Red skoi at noight, geet orf my laand!

Cambridge International Software, which has just released *Farmonopoly*, must think it's addictive to play because there certainly aren't any graphics to look at – *Farmonopoly* is 99 per cent text. CIS can be contacted on 071-226 3340.



Swain game gone

Good news from The Fourth Dimension if you're not a driving sim buff or hate cars and car games. Bad news otherwise. The 'mother of all driving games', promised for this year, has been sent to the scrap yard.

It was to be a Formula One sim from Andy Swain, the brain behind *Saloon Cars* and *Saloon Cars Deluxe*, and promised to give us the most realistic time behind the wheel yet.

Apparently Swain's game was driving him round the bend so he slammed on the brakes and vows never to start it up again. Oh well.

Sam Greenhill


Simon the Sorcerer
the magical, graphical adventure game for the Archimedes
Walk to Look at Open Move
Consume Pick up Close Use
Talk to Remove Wear Give
"The most accomplished adventure of its type"
THE ONE
"The animation has to be seen to be believed"
CU AMIGA
HD
HARD DISC INSTALLABLE (optional)
RISC OS 2/3
MINIMUM 1 MB RAM REQUIRED
PRICE £39.99 INC. VAT
adventure soft
Available from all good Acorn software stockists or from
GamesWare, Unit 26, The Bartletts, Hamble, Hants SO3 5RD.
Orderline 0635 299676. Visa and Access accepted.
GamesWare is a trading name of Astrom Computing Ltd.
ECLIPSE
For further information on GamesWare products, please fill in this coupon and post to the address above:
Name
Address
Post code
GAMESWARE



BIRDS OF WAR

Supplier: The Fourth Dimension
Tel: (0742) 700661 or 769950
Price: £34.95
2Mb Ram required

From the look of the Fourth Dimension's adverts things are looking up for flight sim freaks like myself. At last, a proper flight simulation game on the Acorn machines that features a massive list of missions, loads of different planes to fly and a good range of ordinance. But what is the game actually like?

Birds of War was released just before Christmas, at the peak time for games sales, and I joined the rush to purchase *the* flight sim for the Arc. After playing through a few missions I was disappointed to find that some of them left me locked out of the machine, forcing me to reset.

One mission crashed during the briefing before I even had a chance to take off and another locked up the computer as I put the flaps down to come in to land!

A phonecall to the Fourth Dimension and the game's author, John Whigham, revealed that several bugs were missed during testing, as the game had to be rushed out for the Christmas market.

Fortunately an updated version is now available with most of the main problems fixed and existing owners are entitled to a free upgrade.

So now that the technical aspects are sorted, what about the gameplay? Players of *F19* on the PC will find the first options screen familiar, as it takes the form of a pilot's roster.

After selecting a pilot, a series of well presented screens allow you to choose the time and place: an era and a part of the world to fly in. *BoW* offers a massive six theatres of battle which themselves offer eight missions each. This range forms the backbone of the appeal of the game as 192 missions should keep the most hardened pilot going for quite some time.

Mission briefings are detailed, with maps, reconnaissance footage and a few wise words from your kick-ass CO. The graphics are varied but not fantastic, and it's obvious that an artist was not brought in which, as we have seen from games like *Aldebaran*, pays great dividends.

Once you've chosen your plane and armed it appropriately you're ready to take to the sky. Each plane handles differently but the aerodynamics are not as realistic as in *Mig 29*.

Although the average frame rate is also not as good as in SIMIS' flight simulators, the range of weapons and extremely varied missions give the game a much longer lifespan. However, *BoW* is very tricky to play as air combat without guided missiles is time consuming and hard (more so than in any other Acorn flight sim).

Missions involving bombing convoys, photographing depots or escorting cargo aircraft are a real improvement over older flight games, and several nice touches like smoke trails on missiles really add to the atmosphere.

On the down side, running the game from floppy is a real pain due to the large amount of unnecessary disc swapping, so a hard disc is recommended. Also, the music is very poor but fortunately the game can be configured to prevent earache.

The Fourth Dimension has basically rushed out a potentially excellent air combat game, which still contains a few bugs. In dogfights the enemy planes often suddenly flick through 180 degrees and some minor bugs like corrupted briefing text still exist.

However, if you don't mind the occasional problem (which will probably be fixed soon anyway) and you can cope with a pretty tricky game, then *Birds of War* is the answer to any flight sim fan's prayers.

Paul Wheatley




Lemmings 2 TM
the Tribes
£29.99
A cast of irresistible lemming characters with digitised voices, over 60 brand new skills, a challenging new game play and intriguing new Lemming tools and wild contraptions.
Guide 12 Tribes of Lemmings across Lemming Island on an incredible Journey.
Meet the Highland Lemmings, Space Lemmings, Beach Bum Lemmings, Circus Lemmings and many, many more on a quest to save their island...
KRISALIS SOFTWARE LTD.
KRISALIS SOFTWARE LTD., TEQUE HOUSE, MASONS YARD, DOWNS ROW, MOORGATE, ROTHERHAM, S60 2HD.



Zelinites: space invaders necer had it so good

PLAY IT AGAIN SAM 3

Supplier: Superior Software
Tel: (0652) 658585
Price: £24.95

- Zelanites
- Top Banana
- Superior Golf
- Letrouve

The odd one out is *Letrouve* because you can mix all the others. Take *Zelanites*, for example, the revamped blast-'em-up of the all-time classic *Space Invaders*: this can easily be played hiked-out when you're in a psychedelic mood, and shooting down visitors from Zongo is just like playing golf badly. Then there's *Top Banana*, the acclaimed weirdo-raver-platform game, where the water flows and the ladders just reach up into the sky, man: well this could easily mix with space invaders and golf. In fact, it's so spaced-out it could mix with anything and you wouldn't know any different.

Finally, there's *Superior Golf* itself. Well, if golf is an 'alien' concept to you, you really ought to try it on the computer: it makes an excellent game just like any other. And when you start computer golfing for the first time it will be just like *Top Banana* – no overall direction, strange goings-on and always trying to keep dry.

But *Letrouve* is a mind game, so it's impossible to mix with any of the others, which are mostly mindLESS. It's a bit like those puzzles that people with very high IQs do easily, where they're given a sample pattern of coloured squares and have 10 seconds to match it to an identical sample hidden somewhere on a large 'patchwork quilt' of randomly coloured squares.

Only it isn't, because I found it quite possible and my IQ is notoriously low. It gets harder of course, but not before it gets challenging, and I spent several hours getting really frustrated as I repeatedly messed up by a mere fraction of a second.

Letrouve is also the odd one out because it's brand new, the other three having been released a couple of years ago at full price. This, therefore, makes *Play It Again Sam 3* excellent value for money and easily a worthwhile buy.

Sam Greenhill



Superior Golf: quite a laugh, really

CHEATS

Ixion

If you want to get infinite energy in this absolutely fabulous, 3D arcade-adventure, smart graphics game then you want to listen to Eddie Pepper.

He's from Long Credon in Buckinghamshire and he's sent Game Show the lowdown... check into the nuclear storage building, or anywhere you can log-on to the 'Skeleton' computer system, log-on and type in 'Wow what a great game!'

If you need help to complete a puzzle, writes Eddie, use the same system and type in 'Hints n Tips'. 'I hope this can help someone out' he finishes. Thanks Ed.

Populous

This, from our friend DJ Zerafa in Malta, is complicated so read carefully and don't, er... don't be distracted by anything.

In any world, go to the Game Setup screen and click on the Custom button.

Click on the Games Option icon and set any of the parameters as you like then click OK on Game Options. Then, in the Game Setup window choose to play as Evil and click Cancel on Game Setup. When you return to the game you should be playing as Good but with a difference!

The Evil side cannot build land up or down. It also restricts earthquakes and things. Thing is, DJ, can this really be much fun? I mean, you *always* win this way... I'm sure the gods had other things in mind.

Saloon Cars Deluxe

Thomas Cork writes to Game Show from Clevedon, Avon: 'I have enclosed some cheats because I think I have even more than The Bear'. A challenge!

In *Saloon Cars Deluxe*, if you can't get off the Astra, try this: back up your game disc then view it from the desktop and rename the following directories, in the normal desktop manner: *!ASTRA* to *!SIERR*, *!SIERRA* to *!ASTRA*, and *!SIERR* to *!SIERRA*.

Before you can say splutter, splutter, your creaky old Astra will suddenly turn into a gleaming Sierra Cosworth. The simple cheats are always the best! (Now, there's a brilliant cheat for getting extra dosh in *Saloon Cars* but I've lost it! Anyone care to oblige?)



SMALL

Supplier: Virgo Software
Tel: 061-456 0009
Price: £24.95

If you've played a game on a PC lately, particularly one of the adventure genre, you've no doubt come across texture mapping. This involves taking a 'flat' sprite and overlaying it on to the side of a three-dimensional shape.

Rather than having just single-coloured blocks to represent 3D objects, textures such as wood, marble or steel can be mapped onto walls, floors and ceilings to give a much-improved sense of depth and 'being there'.

Small, the first game from new company Virgo, is a 3D maze game and uses texture mapping to great effect for all the scenery.

The rest of the graphics were all produced using Clares' *Illusionist* program, so it's no surprise to find out that the game was written by DJ Hoskins, the author of *Illusionist*.

The prime objective in *Small* is to escape from the prison of your own mind, which just happens to be inhabited by spiders, acid blobs and huge pairs of staring eyes – all very Freudian.

The story goes that the gods have shrunk you and cast you into the labyrinthine realm of your mind, to punish you for your arrogance and to teach you humility. Personally, it feels as if you're suffering from the effects of some rather furry cheese that's well past its sell-by date...

The game is split into several levels, each of which consists of a number of increasingly complex mazes. All you need to do is find the exit and you're out – to the next maze. A map at the top keeps track of your movements and indicates where you have been.



Not all mazes need to be explored completely to escape, but hidden doors may pop up that can be found more simply by using the map.

At the start, things are simple and you need only wander around for a few moves before finding the exit. However, it's not long before you meet all manner of nasties that want to stop you (boy, I hope my mind doesn't have these things in it!). Some are (mostly) harmless, but generally, it's best to shoot, maim and destroy anything that lies between you and freedom.

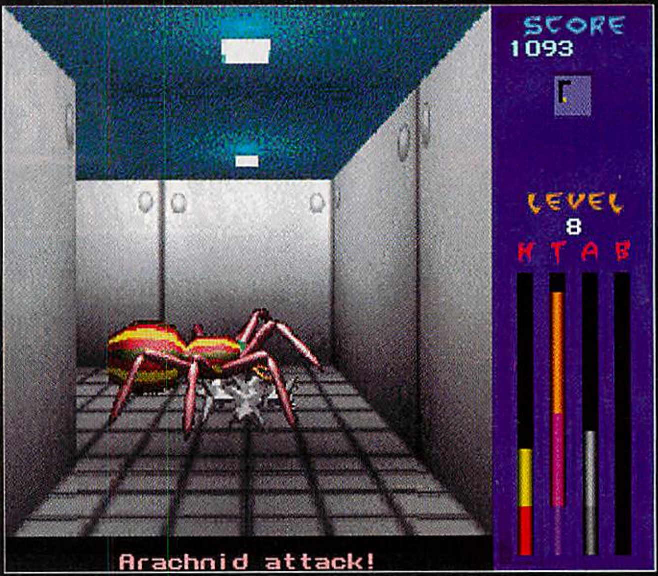
As well as creatures in the maze, there are a number of other items you may come across such as treasure, extra ammunition, traps and transporters. Treasure will increase your score, as will shooting bouncing spirit balls that ricochet around the walls of the maze.

Traps will freeze you on a square if you're not quick to get out and transporters will move you to another part of the maze before disappearing.

Visually, *Small* is rather nice, with 256-colour graphics used throughout and everything running smoothly. Movement through the maze is particularly good and walls, floors and ceilings glide by with every step you take.

I would have liked to have seen more use made of the texture mapping though; perhaps some animated robots per chance.

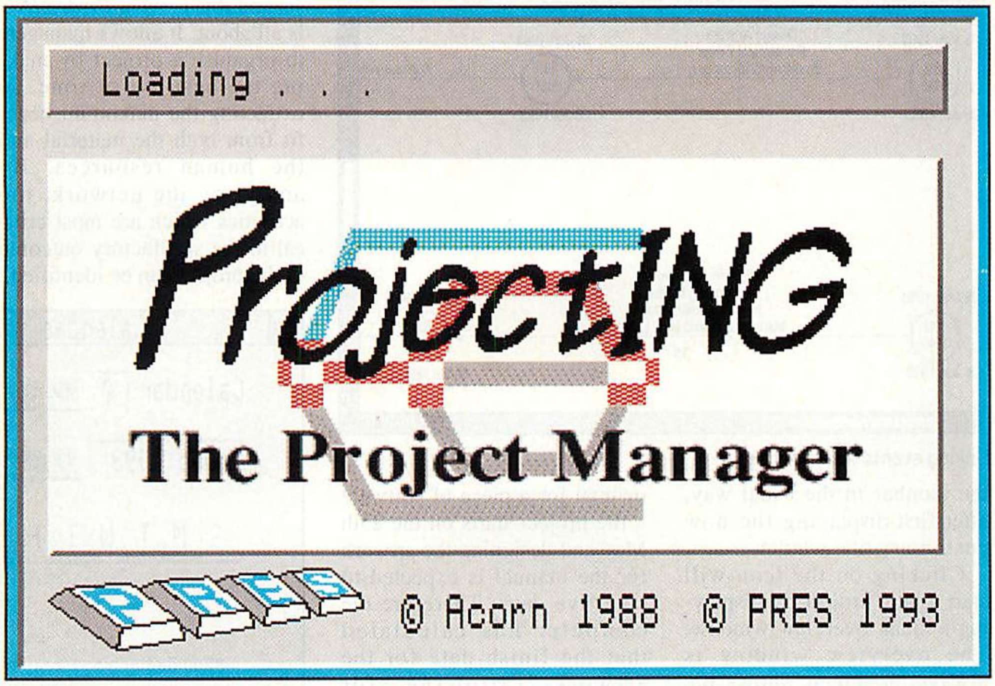
Each maze only occupies one level (so there are no stairs or lifts) but having to explore a truly three-dimensional maze would have increased the playability of the game. A little more interaction with the maze denizens would also have given the game another angle (pun intended!).



Small is the best 3D maze game on the Arc at the moment and I would recommend it. If, though, you set it against what is on offer on the PC/Mac/Amiga at the moment, it pales in comparison.

The Acorn 32-bit technology is now over six years old and it's really about time that we saw games worthy of the machine.

Rob Miller



All in the planning

Geoff Preston takes a look at the first project management package on the Acorn platform, ProjectING

It's been a long time, I feel, since we've seen a piece of software that is new and unlike anything else. *ProjectING* from PRES is such a package.

The full name of this product is **Project I**nteractive **N**etwork **G**raphics, and is described as a graphically based project planning tool that allows the user to design and manage all aspects of a project.

The term 'project' could refer to anything from building the Channel Tunnel to making a cup of coffee, but more realistically it will be (for teachers) planning meetings or preparing lessons, or (for students) planning and producing a GCSE Technology project.

Indeed it was this area that originally generated my interest, as Level 10 of the Information Technology National Curriculum requires project planning. So far this is the only piece of software for the Acorn platform which is specifically aimed at that target. Therefore, this tool is for top GCSE through to A-level, and beyond.

Project building

One should not dismiss *ProjectING* as just an educational program created to satisfy one of the elements of the National Curriculum. *ProjectING* is a powerful business tool and as advanced as any other piece of business software.

In recent years the emphasis of Project Management as a means of controlling programs of work has increased significantly. This not only requires good managers but also the tools to enable them to manage the information under their control.

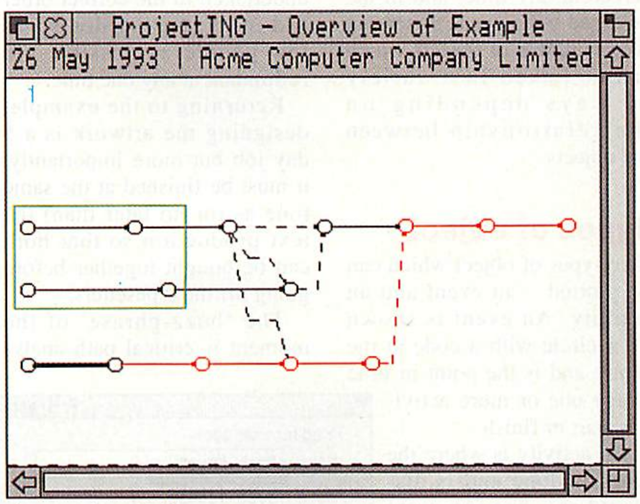
In planning a project it is important to consider the activities required to complete and possibly of greater importance, how the various activities relate to each other.

For example, if you are building a house, the bricklayer will leave holes in the walls for windows, in accordance the plans. The carpenter has to make the window frames and then the glazier and the painter can do their jobs.

You need to bring each of these people onto the site at the correct time. Obviously nobody is going to want to employ a painter to sit around waiting for the carpenter to finish making the window frames.

Consider all the various tasks involved in building a house – planning permission, surveying, laying on services, wiring, plumbing, delivery of materials for all of these activities - and you soon begin to realise the scale of the problem.

Now consider the problems involved in creating a new housing development and it becomes apparent that help is required to extract the maximum from the work force and keep waste to a minimum.



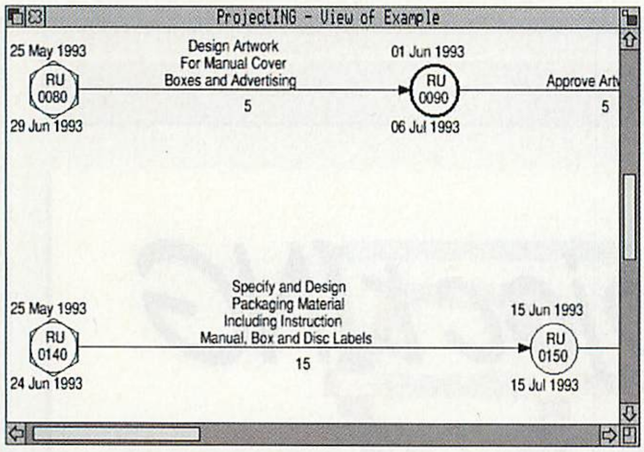
The overview window

ProjectING performs four key planning functions: advance planning of new projects, management of current projects, control of project timescales and full management of project resources.

For schools there is a cut-down version called *PlanING* which inc-ludes all the features of *ProjectING* except resourcing. The output size for *ProjectING* is limitless, whilst *PlanING* will produce a document which has a maximum size of A1 (8 tiled A4 sheets).

Starting a project

The package requires at least Risc OS 3.1 with a minimum of 1Mb of memory. A hard disc is desirable, but not a firm requirement. Double-clicking on the icon in the Filer window installs the program icon on



Linking events with activities

the iconbar in the usual way, after first displaying the now customary title window.

Clicking on the icon will start a new project by displaying a blank overview window. The overview window is always on screen, shows the whole project network (albeit with minimum detail) and contains one page, but further pages can be added as the project grows.

Clicking Select in any part of the overview window gives an enlarged view of that part in a second window. Several enlarged windows can be on screen at any time, and in the enlarged windows the user can plot a number of objects which can be linked in a variety of ways depending on the relationship between the objects.

Types of object

Two types of object which can be plotted – an event and an activity. An event is shown as a circle with a code at the centre and is the point in time where one or more activities start or finish.

An activity is where the work is done and is displayed as a line. An event must occur at each end of the activity and will have a figure time indicating how long the activity will take.

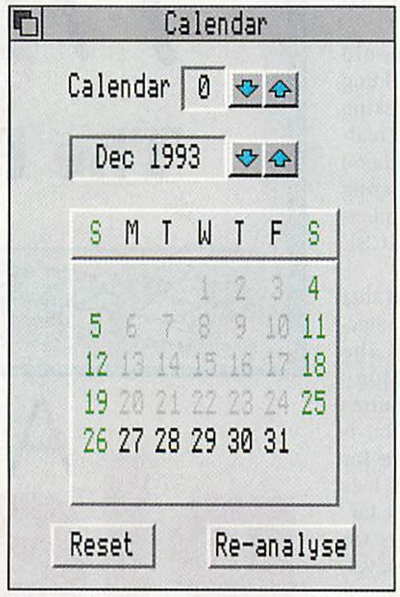
The user has the option of editing any part of a network and the computer will automatically calculate and update the rest of the network, providing enough information is supplied by the user.

In the example shown – producing an instruction manual for a piece of software – the project starts on the 25th May and designing the artwork for the manual is expected to take five days. Therefore the computer has calculated that the finish date for the artwork (allowing for weekends) is 1st June.

Altering the duration of a particular activity could affect the start time of other associated activities and often affects the total duration of the whole project (which could in itself have further ramifications). The user can move activities around, ensuring they are undertaken in the correct order and in the best order so as few people as possible are redundant at any one time.

Returning to the example, designing the artwork is a 5 day job but more importantly, it must be finished at the same time as (or no later than) the text production so that both can be bought together before going off the typesetters.

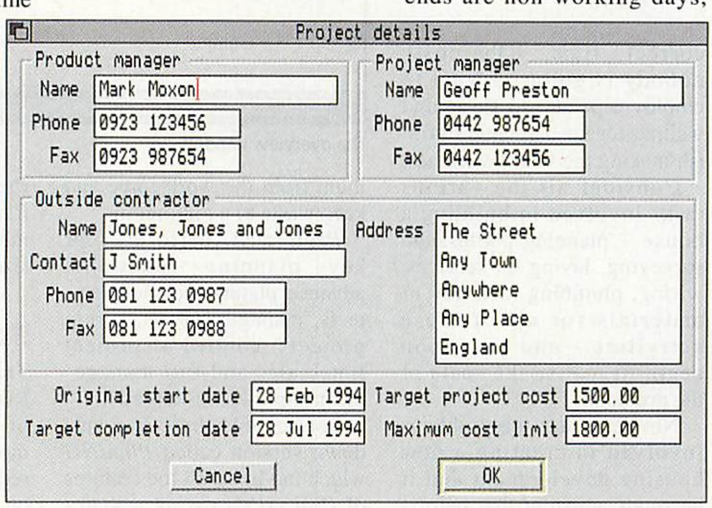
The 'buzz-phrase' of the moment is critical path analysis and this is what *ProjectING* is all about. It allows managers to organise a project by making the best use of time, so extracting the maximum benefit from both the material and the human resources. By analysing the network, the activities which are most critical to the satisfactory outcome of the project can be identified.



The real-time calendar

Set up

When a new project is started, the user can enter various details about the project using the Setup option from the main menu. The dialogue box shows the various categories of information that can be referred to during the course of the project. A real time calendar is also included which interacts with the network. The calendar initially indicates that weekends are non-working days, and further rest days can be specified. Several calendars can be included to account for a number of people working different hours during the week. Both versions will output to a printer using the appropriate Risc OS printer driver, or probably of more use, to a Hewlett Packard plotter. Apart from the main network, a wide range of reports can also be printed.



Entering data into the Project details box

Conclusion

The full version, *ProjectING*, is a superb package. The software itself feels like a quality product which has been both well written and thoroughly tested. The ring-bound manual takes the user from the first principles, through to a tutorial which is ordered in a clear and logical manner.

Of course, premium software demands a premium price but the single user price of £299 seems very fair when compared to other Acorn software and extremely good value for money when compared with similar products for PCs.

Schools, however, may well find the multi-user price of £749 a little too expensive and so would probably look towards the cut-down version, *PlanING*, which most will find more than adequate for A-level students. At £99 for the single user and £297 for the multi-user, this represents excellent value for money and really is a must for top level students tackling level 10 of the National Curriculum.

As I said before, this is not just another educational program. New businesses just starting up could do a lot worse than invest in Acorn computers and a few site licences for software like this.

Product details

Products:ProjectING, PlanING
Supplier: PRES
Tel: (0276) 472046
Prices: ProjectING, £299 single user, £749 site licence PlanING, £99 single user, £297 site licence

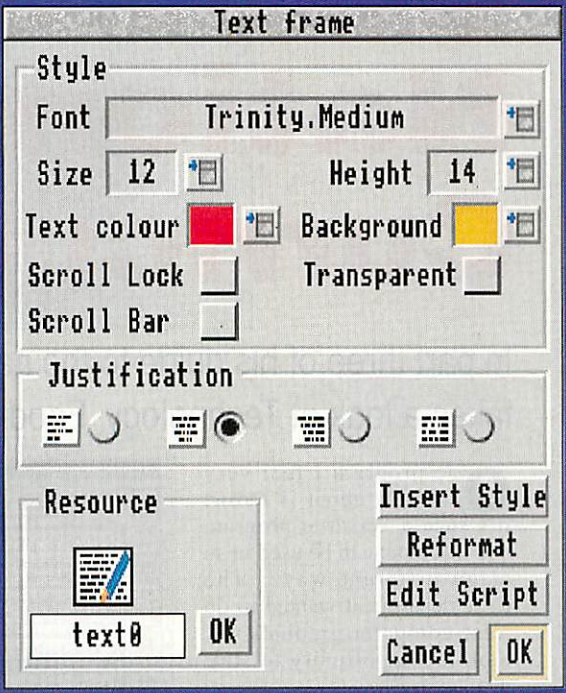
genesis™

the future of multimedia

Genesis, which for many years has been the leading multimedia authoring package on the Archimedes, has taken a large step forwards with the announcement of two new versions: Genesis Project and Genesis Professional. Both new versions include a completely revised user interface designed to be both easy to master for the novice user, yet quick and powerful for the Genesis expert.

The Genesis menu structure has been simplified by using dialogue boxes to alter the style of frames and pages. Application creation and editing has been eased by the introduction of 'Object Linking and Embedding'. 'OLE' allows data to be transferred quickly and smoothly between Genesis and editors such as Draw, Euclid and Artworks.

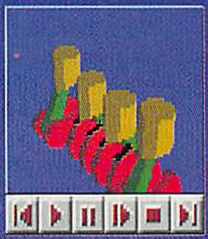
Genesis now supports Artworks, Replay, Windows .BMP and .WAV files. Control buttons can be added automatically to Euclid, Film, Replay and Sound frames. It now incorporates a 24 bit colour model and can handle the new 15 and 24 bit Sprites. A turbo loading system significantly increases the speed at which pages open.



genesis Project

Genesis Project is the replacement for Genesis Plus. It is aimed at the user who wishes to create multimedia applications in a simple straightforward manner by clicking and dragging with the mouse. New features include 3D frame borders and automatic frame snap. Users of Genesis and Genesis Plus will appreciate the ease with which applications can now be created and the extra facilities that the new user interface brings.





genesis Professional

Genesis Professional is the replacement for Genesis II. It is ideal for the Genesis power user who requires the very best in multimedia authoring tools. Many features, previously only available via the script language, can be accessed using the mouse. Master pages can now be created and added to a library. Support is provided for Laservision players and for CD (including control for CD audio). The powerful Genesis Script language has been extended with a host of new keywords and now supports global variables which can be accessed by all pages. Scripting can now be done externally in Edit using the OLE facility.

Genesis Project	£50
Genesis Project (Site)	£200
Genesis Professional	£120
Genesis Professional (Site)	£480
Upgrade Genesis/G+ to Genesis Project	£35
Upgrade Genesis/G+ to Genesis Professional	£90
Upgrade Genesis II to Genesis Professional	£60

Site licence upgrades X 2 Prices inc. P&P but exc. VAT

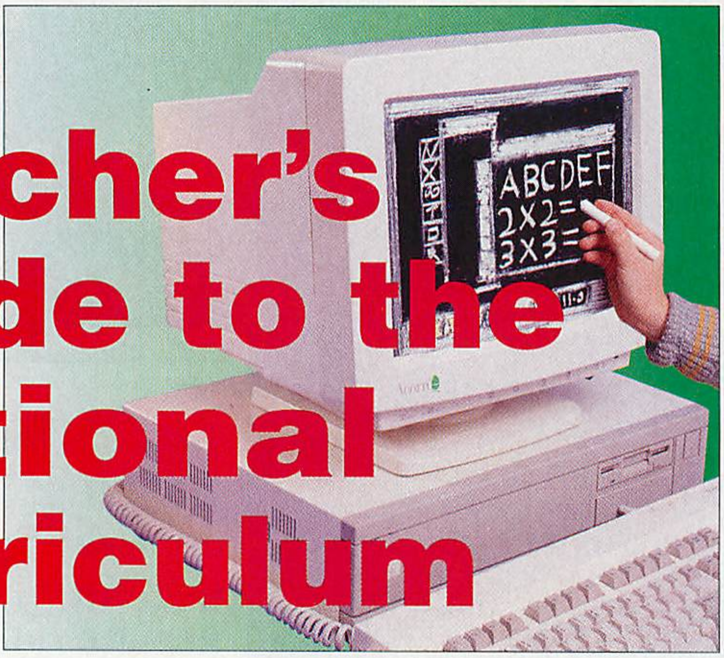
genesis™

interactive multimedia authoring

Oak Solutions Ltd Dial House 12 Chapel Street Halton Leeds LS15 7RN
Tel: 0532 326992 Fax: 0532 326993

OAK SOLUTIONS

The Teacher's Guide to the National Curriculum



In part three of his guide to the national curriculum, Geoff Preston takes a look at Technology, Food Technology and Science

One program I feel very strongly about is *Draw*: it's such a versatile program and its output can be used in so many different ways. The CDT department wanted to do some computer graphics so I took the opportunity to start them with *Draw*.

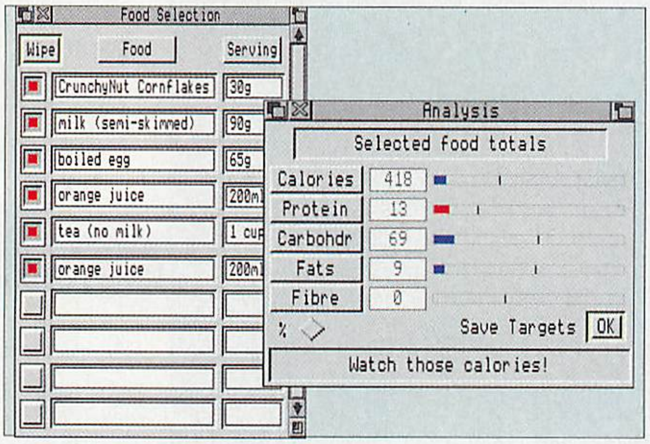
Having recently finished some animations for 4Mation's *Noot*, I decided that making an animation would be the main aim of the half-term module. This, of course, proved very popular.

Students produce a simple picture using *Draw* – usually this is a face or a simple humanoid. This drawing must be grouped into a single object and then copied. The copied object is then ungrouped, altered in some subtle way and regrouped to form a second frame.

Each student produces at least four, and no more than eight frames. Each frame must be a grouped object and they are 'stacked' on top of each other in the correct order.

Early versions of *Noot* (by which I mean pre-production versions) used a program called *NootMaker* to compile the animation. Sadly this has now been replaced with *NootPad* which fulfils the same purpose.

I prefer *NootMaker* as it requires a text file to be written



Using IT in science

which controls certain aspects of the animation: a program, in fact. Once the control program has been written, (or *NootPad* has been set up) the animation can be compiled. Anyone who wants a change from teaching Logo might find *Noot* a viable alternative as a means of controlling a screen image.

Noot is a well-produced program offering lots of scope for work with students of all ages. Apart from the ability to create your own animations, *Noot* comes with a number of files which form the basis of a reference section on the school's network.

Creating a picture in *Draw*, copying it and making alterations, saving the picture, writing the control program and creating the animation, addresses statements 1a, 1b, 2a, 2b, 3a, 3b, 4a, 4b, 5a, 5b and 6a.

The write up, which I get every pupil to produce for every piece of IT work they do, really should include some frames from their animation. Perhaps the animation could also be video recorded.

Food technology

The IT work in Year 9 is designed to be a culmination of all the work studied in the previous two years and features three major subject areas.

For three double lessons only, Year 9 students from Food Technology use a food database to plan a meal .

The program used is *DietMan* by Mewsoft. This is yet another example of quality software at a very reasonable price – less than £80 for a site licence.

DietMan is a purpose-built database containing the nutritional information from well over two hundred foods. In the first week students enter their own intake for the day which is a real eye opener as *DietMan* immediately tells them how awful some of their diets really are.

By week two they will have a good idea of what meal they are going to prepare and have available the nutritional information for any of the ingredient(s) that are not in the database. These are then entered and, once checked, saved along with the rest of the database.

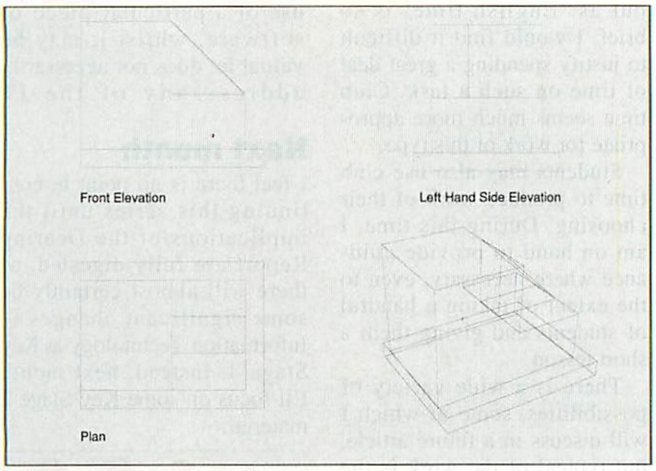
The full ingredient list for their meal is now entered and a printout of the total nutrients produced. Some will save their results as a CSV file and drop it into *Graphbox* to produce a graph of the nutritional value of their meal.

Loading the database, searching for the specific foods of their own daily intake, printing out results, adding some records, entering foods for set meals, adjusting ingredients to provide a balanced diet and producing a graph from the results, should address statements 1a, 2b, 3a, 4a, 3c, 4c, 6c and 6d, and could also contribute to 2a, 4e, 5a, 5d, 6a, 7d and 7e, depending on what additional work was carried out within the main subject.

Writing an account of this IT experience could also contribute to 3d, 4d, 4f, 6e and 7f. As with all accounts of work of this type, the material may contribute to students' IT statements, but will not necessarily cover all statements suggested. It is very much dependent on how the material is delivered and what additional teaching is carried out.

CDT

At Highgate Wood School, we use the IT facilities for CDT one double lesson per week for half a term. During this time we use *Perspectives* from Techsoft. At only £75 for a full site licence, *Perspectives* offers an excellent introduction to CAD.I have found that this program can be used in several ways, but I feel it is most successful as a teaching aid to the



Orthographic projection made easy

introduction of orthographic projection. As a technical drawing teacher, I had to teach youngsters how to draw in orthographic using a blackboard and a couple of teaching aids made from cardboard. How much easier it is to use a program such as this to deliver what can be a very dry topic.

Having shown students how to use the program, they can then go on to produce some orthographic drawings of their own, which can be printed or plotted. The program contains a plotter driver, and this drives our Linear Graphics Plotmate A3M very well indeed.

Once the students have mastered the program, they are given a simple design brief and can use *Perspectives* to draw their solution. Apart from calculating the three views of an orthographic, *Perspectives* also produces a perspective drawing of the object.

The real prize for the students is the fact that *Perspectives* will display their work in stereoscopic 3D, which you can view by wearing a pair of those funny glasses with one red and one green lens. The object can be rotated under mouse control, and gives students immediate feedback regarding the probable viability of their work.

Loading the program, experimenting with examples, entering their design, testing it, altering it, plotting the result and saving their work, addresses statements 1a, 2a, 2b, 3a, 4a, 6d and possibly 6a. What this does not take account of is the fact that the work also addresses statements for the subject being supported – in this case CDT.

Science

This module is set for the Spring term (just before the final Key Stage 3 assessment) and is intended to represent the culmination of all the work done in Key Stage 3.

The science department sets the students a problem which they work out by experimentation. The results of the experiment are presented in a booklet and can incorporate as much or as little IT as they wish.

The booklet will presumably be produced using *Impression*, and may include a spreadsheet, database, graph or anything else thought to be appropriate. They could even use a painting or drawing program to draw the apparatus used in the experiments. The possibilities are endless, and the work could conceivably address any of the statements up to level seven, and for some, beyond.

Typical of the experiments set are 'the ball bearing down the ramp' (how does the angle of the ramp affect the distance a ball bearing travels), and 'the dissolving tablet' (how quickly do different sized parts of a broken tablet dissolve).

The statements addressed by work of this type are entirely dependent on what experiment is chosen and how much work goes into it. But assuming the work is produced in a text editor, most of the statements in the Communicating Information strand could be addressed, in particular 6a and 7a.

The inclusion of a database displaying the results could be up to 8b in the Handling Information strand and if a spreadsheet is used, up to 8d in Modelling.

The experiments suggested here do not appear to offer much scope for Measurement and Control, but most of the Applications and Effects strand could be addressed up to 7f.

Pause for thought

Discounting the Science work at the end of Key Stage 3, in which the students could use a variety of software and hence would address widely different statements, the work described in this and the previous two articles addresses most statements, up to and including Level 7, more than once.

In several cases, the statements are not necessarily addressed during the actual IT lesson, but afterwards in the subject base. It must again be emphasised that co-operation and collaboration between departments and the Information Technology department is vital. This is in order to maximise the effectiveness of any IT course, and schemes of this type in particular.

Writing up the IT experience is a valuable part of the work and in itself can contribute to some statements that might otherwise be difficult to address. This is normally carried out within the subject area.

I've stated on several occasions that this model for IT delivery in Key Stage 3 should not represent the only IT experience students receive. Rather, this is the basis upon which other work could and should be offered.

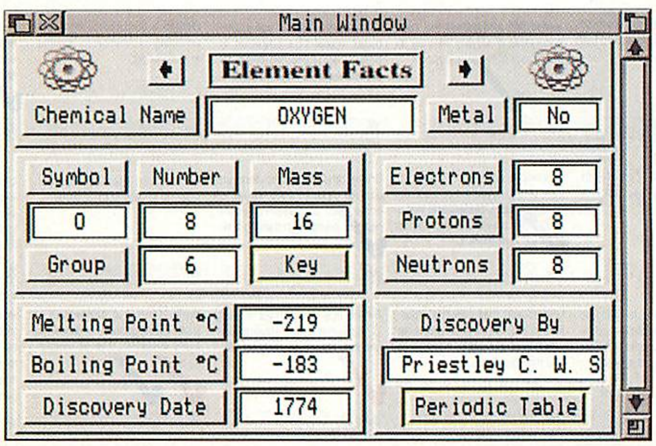
At Highgate Wood School, all departments have at least one computer, and many have significantly more. Many courses currently in place rely on regular computer use. The SMILE Maths scheme, for example, provides many opportunities for students to use computers to solve problems. In so doing, many IT statements will be satisfied, especially in Modelling and Handling Information.

Staff may also find they are involved in work with the whole class where IT would provide significant benefits. In this case, staff may 'book' the IT rooms for a period of time – assuming, of course, the rooms are free.

This feature is one which staff find particularly useful, especially as the room includes an IT expert (me) to help set up the software, provide demonstrations and give general support. It also allows me to provide a sort of INSET (INService Training) during lesson time. Most departments have taken advantage of this facility, but a couple of particularly memorable sessions come to mind.

The first came from the PE department who, at that time, were studying recovery rates. A group of students were provided with a stopwatch each and were shown how to take their pulse. This they all did, and were then sent for a rather arduous run after which they all immediately took their pulse, and continued to do so at 5 minute intervals. When they had fully recovered (and showered), they came to the IT department and produced a recovery rate graph.

Another group, this time from Science, were doing some work on the Periodic



DietMan in action

Statement Hit Rate	
More than once	1a 1b 2a 2b 3a 3b 3c 3d 4a 4b 4c 4d 4f 5a 5b 5d 6a 6c 6d 6e 7a 7f
Once	4e 5e 5c 7d 7e
Not at all	7b 7c 8a 8b 8c 8d 8e 9a 9b 9c 10a 10b

Attaining statements by using these articles

Table of Elements. I had recently purchased a specialised database of the elements (called *Elements* by ArchAngel) and the class were able to use this to answer the questions set by their science teacher.

Both of these achieved two quite separate and distinct goals. The obvious one is that it gave students a valuable IT experience, but the second, and in these instances I believe more important, was that two teachers were able to use the IT room who may not otherwise have had the chance.

This is the key to the success of any IT scheme. No one person can deliver everything. The Head of IT or the IT coordinator needs the help and support of all of the staff – even from those who think they won't be any good with computers and are frightened by them.

In these two instances staff were able to bring a group into the IT room and were able to deliver a meaningful lesson with my help and support. The next time, they will hopefully feel sufficiently confident to take the lesson without my help.

IT clubs

At Highgate Wood, one of the features of Information Technology is our set of clubs. The IT rooms are available for students for an hour before school, during the lunch break and after school.

During these times, students can either develop set IT work, or work on projects of their own.

The ability to develop IT work started during lessons is most important. For example, students may want to create a graphic to illustrate a document being produced in conjunction with English. I feel the inclusion of such an illustration may well be essential, but as 'English time' is so brief, I would find it difficult to justify spending a great deal of time on such a task. Club time seems much more appropriate for work of this type.

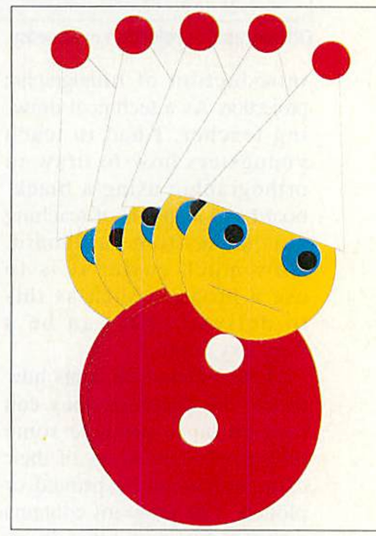
Students may also use club time to produce work of their choosing. During this time, I am on hand to provide guidance where necessary, even to the extent of taking a handful of students and giving them a short lesson.

There is a wide variety of possibilities, some of which I will discuss in a future article, but typical of the work is the use of art/graphic programs. Apart from the software, students have the opportunity to use devices such as a scanner and video camera, and use an assortment of programs to enhance the images. Another gadget guaranteed to bring in the crowds is a computer-driven embroidery machine which gives students the chance to output their work in a form other than on paper.

It is also a good opportunity for them to use some of the software I won't allow during lessons, either because the lesson time is already fully accounted for, or because the use of a particular piece of software, whilst it may be valuable, does not necessarily address any of the IT

Next month

I feel there is no point in continuing this series until the implications of the Dearing Report are fully digested, as there will almost certainly be some significant changes to Information Technology at Key Stage 4. Instead, next month I'll focus on some Key Stage 2 material.



Animating frames using Noot

Information Technology Statements of Attainment

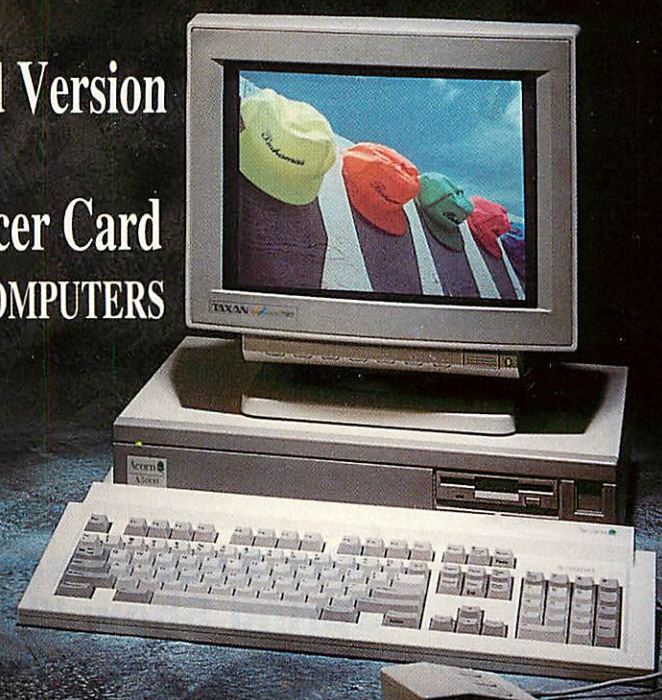
To achieve a level, each student should have at least two pieces of work showing evidence of meeting the criteria. Please note that not only should the finished piece of work be available, but also evidence of the development of the work (in other words, work at various stages of completion).

Communication	Work with a computer using conventional or other keyboards. (✓ Food ✓ CDT ✓ Animation) 1a	Use computer-generated pictures, symbols, sounds or phrases to communicate meaning. (✓ CDT ✓ Animation) 2a	Use IT for the storage and retrieval of information. (✓ Food ✓ CDT ✓ Animation) 2b	Use IT to create, amend, retrieve, develop, organise and present information. (✓ Food ✓ CDT ✓ Animation) 3a 4a	Use IT to combine, organise and present information in different forms for specific purposes. (✓ Animation) 5a	Use IT to combine and organise different forms of information for presentation to an audience. (✓ Science ✓ Animation) 6a	Select software and use it to produce reports which combine different forms of information to fulfil specific purposes for a variety of audiences. (✓ Science) 7a
Information Handling	Collect information and enter it into a database. Select and retrieve information from the database. (✓ Food) 3c	Amend and add information an existing database. Check its plausibility and interrogate it. (✓ Food) 4c	Use a software package to create a computer database so that data can be captured, stored and retrieved. 5c	Identify advantages and limitations of data-handling/graphics programs and recognise when these offer solutions to a problem of data handling. (✓ Food) 6c	Select and interrogate a computer database to obtain information needed for a task. Know when it is appropriate to use a software package rather than another means of information handling. 7d 7e	Select and use software to capture and store data, taking account of retrieval, ease of analysis and the types of presentation required. (✓ Science) 8b	Evaluate a software package or computer model, analyse the situation for which it was developed; assess its efficiency & appropriateness and suggest refinements. 9a
Modelling	Use a computer model to detect patterns and relationships, and how the rules governing the model work. 4e	Use IT to explore relationships and patterns and to form and test simple hypothesis. 5d	Investigate and assess the consequences of varying the data or the rules within a simple model. (✓ Food ✓ CDT) 6d	Design, construct and use a computer model of a situation or process and construct computer procedures involving variables. 7b	Design a successful means of collecting information for computer processing. 8a	Use software to represent a situation or process with variables, and show the relationship between them. (✓ Science) 8d	Design, implement and document a system for others to use. Decide how to model a system, and design, implement and test it. Justify methods used and choices made. 9b 10a
Measurement and Control	Talk about ways in which equipment such as toys and domestic appliances respond to signals and commands. (✓ Animation) 1b	Give a sequence of direct instructions to control actions. (✓ Animation) 3b	Develop a set of commands to control the movement of a screen image or robot. Understand that a program is a series of instructions followed in sequence. (✓ Animation) 4b	Understand that computers can control devices by a series of commands and appreciate the need for precision in framing commands. (✓ Animation) 5b	Understand that devices can respond to data from sensors. 6b	Understand that the results of experiments can be obtained over specific periods or at a distance using data- logging equipment. 7c	Construct a device which responds to data from sensors. Explain how they have made use of feedback when implementing a system. 8c
Applications and Effects	Review their experience of IT and consider applications in everyday life. Compare with other methods of doing similar tasks. (✓ Write ups) 3d 4f	Understand the need to question the accuracy of displayed information and that results may be affected by incorrect data entry. (✓ Write ups) 4d	Understand that personal information may be held on computer which is of interest to themselves and their families. 5e	Review their experiences of using IT, consider other applications and their impact on everyday life. (✓ Write ups) 6e	Understand that dangerous or costly investigations, or those not easily measured, can be simulated by IT. (✓ Write ups ✓ Science) 7f	Understand why electronically stored personal information could be easier to misuse than other forms. Understand the effects of inaccurate data in files containing personal information. 8e 9c	Discuss and show understanding of the environmental, ethical, moral and social issues raised by IT. 10b

Possible statements addressed this month : ✓ Food ✓ CDT ✓ Science ✓ Write ups ✓ Animation

ColourCard
GOLD

A New Improved Version of the Graphics Enhancer Card
FOR ACORN RISC COMPUTERS



ColourCard Gold offers a very significant improvement for anyone using their computer for graphics or DTP work.
The card is easy to fit and is 100% RISC OS desktop compatible .

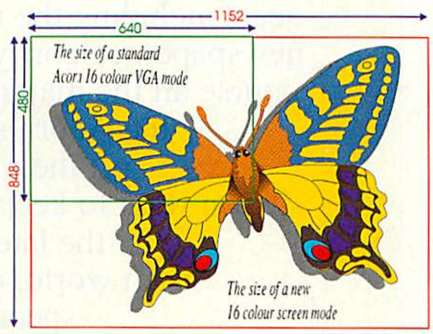
More resolution, more speed, more colours, less flicker !

The main features

- Much higher resolutions, for example 16 colour screen modes are now possible, at five times the screen resolution of mode 12 and three times that of mode 27. Higher resolutions mean more detail and larger desktop areas. NEW
- The 16 bit screen modes are now desktop compatible, which means you can run the RISC OS desktop and compatible applications in 32,000 colour screen modes for stunning quality true-colour work. NEW
- Necessary software is supplied in ROM on the ColourCard. This means there is no need to have special modules in your boot files or to load anything off disc (additional utility software such as our mode selector and example pictures are supplied on floppy disc). NEW
- A special version of Acorn's !Replay movie playback program is included - compatible with all existing movie files, which takes advantage of the 16bit screen modes for higher quality movies than possible from standard computers. NEW

Acorn Replay ™

- Faster screen redraw speeds - more speed in the higher resolution screen modes than you ever had before.
- Fully programmable palettes. In 256 colour modes this can dramatically benefit some graphics programs - eg ArtWorks can show four times the number of colours using dithering than it could in old Acorn 256 colour modes.
- 60Hz and higher screen refresh rates to completely eliminate visible flicker and help meet the new EEC guidelines.
- True 256 grey-scale screens - at last perfect on screen reproduction of greyscale scanned images or photographs.
- Acorn video pass-through for guaranteed 100% back compatibility with all existing Acorn or third party, screen modes, and unlike other graphics card this option is built in as standard.



Price still only £249.00+ £6 p&p + vat (£299.62 incl)

ColourCard requires RISC OS 3.1 and one expansion slot. Only a multi scanning monitor can take full advantage of the new screen resolutions. Compatible with all multi-scan monitors and A300, A400, A540, A5000 computers (old A300 machines may require a genlock header to be fitted to the board).
Existing boards can be upgraded - contact Computer Concepts or Wild Vision for details.

Computer Concepts Ltd

WILD VISION

E&EO Details are subject to change without notice.

Available from either:
Computer Concepts, Gaddesden Place, Hemel Hempstead, Herts, HP2 6EX Tel 0442 63933 Fax 0442 231632
or Wild Vision, 15 Witney Way, Boldon Business Park, Boldon Colliery, Tyne & Wear NE35 9PE Tel 091 519 1455 Fax 091 519 1929

NEXT MONTH IN ACORN USER

The Acorn User Spring Show '94

April means the Acorn User Spring Show, and our special show issue will contain the definitive guide to everything that you can see in Harrogate.

The 1994 show will see the return of features which have proved so popular at previous shows. This includes a theatre for exhibitors' presentations, a show competition which everyone can enter and win a prize, schools projects including the in-house show newspaper, celebrity visits, and of course all the major companies in the Acorn scene showing off their new products.

If you want to keep in touch with the latest news in the Acorn world, don't miss our special show issue.

PLUS

Reviews galore

We're taking a look at loads of new products, from feature-packed multimedia cards to the latest in music technology to a new low-cost colour hand scanner.

Acorn in Germany

The German market is really beginning to take off for Acorn. Next month Acorn User investigates the latest success story for Acorn.

Writing demos

You've seen scrolling text, star fields, bouncing balls and all sorts of inane effects: we show you how to write your own madcap graphics demo in our new series.

Plus

A guide to history in the National Curriculum, news, games, education reviews and all the regulars.

To be sure of your copy, please fill in the coupon below and hand it to your newsagent. Or why not take out a subscription, which includes a gift pack. See the Subscriber's Page for details

DON'T MISS your issue of Acorn User

NEXT ISSUE ON SALE 28 MARCH

DEAR NEWSAGENT, PLEASE ORDER MY REGULAR COPY OF ACORN USER

YOUR NAME ____________________

ADDRESS ____________________

____

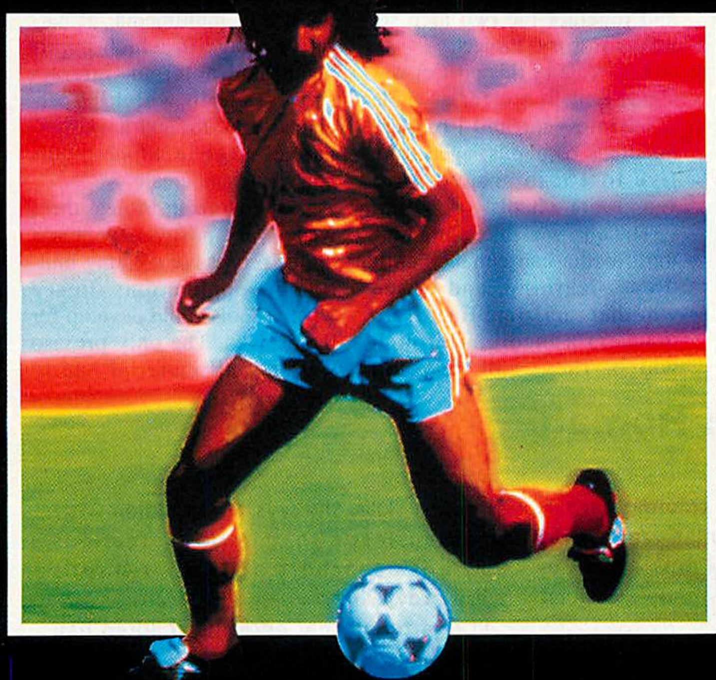
____

Acorn User is published by Europress Enterprise Ltd, Europa House, Adlington Park, Macclesfield, SK10 4NP
Distributed by COMAG (0895) 444055

The best Football game EVER – out for the Archimedes

After 4 months at the top of the Gallup charts,
ARCHIMEDES OWNERS
get the chance to enjoy the game that has been twice voted
"THE BEST AMIGA GAME OF ALL TIME"

Sensible SOCCER



"Definately the best footy game out" – *Mega Action*

"The best game ever" – *Amiga Power*

"Totally addictive" – *Sega Force*

"The finest football simulation ever" – *Sega Power*

"Every other football game is redundant as of now" – *The One*

"If you like football games and don't buy Sensible Soccer, you are an idiot" – *Radio 1*

"It would be difficult to better this" – *Gamesmaster*

HIGHEST CHARTING GAME OF 1993 ★ GAME OF THE YEAR 1993

- 100 EUROPEAN TEAMS ★
- DESIGN YOUR OWN CUP TOURNAMENT ★
- 1 & 2 PLAYER ACTION ★
- DIVING HEADERS, Etc. ★
- SLICK, FAST, INTELLIGENT PASSING ★
- SAVE UP TO 10 REPLAYS AS HIGHLIGHTS ★



- ★ SECOND DISC FULL OF CROWD SOUNDS
- ★ EUROPEAN CHAMPIONSHIP COMPETITION
- ★ AMAZINGLY DETAILED KITS
- ★ SUBS BENCH WITH MANAGER
- ★ TACTICAL ADVICE ON OPPOSITE TEAM
- ★ NAMED SCORERS

C1, Metropolitan Wharf, Wapping Wall, London E1 9SS

Sensible SOFTWARE

Beyond the Horizon

The Horizon Project highlighted the growing importance of multimedia in schools. Alice Smith reports

What is multimedia? Everybody's talking about it but what does the word on everybody's lips actually mean? If you look at how it's used, the term is freely applied to anything from home entertainment systems to commercial communication services.

However, a reasonable working definition seems to be that multimedia is the computer-based combination of text, graphics and sound, plus perhaps photographs and video. Multimedia also has – and this is crucial – an interactive aspect associated with it.

In the next decade, this conjunction of technology is likely to have a major impact on society, particularly in the entertainment and consumer sectors, where interactive TV and mail order shopping from a terminal in your front room are already on the way.

However, multimedia is essentially a communication tool and as communication is central to education, it comes as no surprise that educationalists have also been interested in it.

The Horizon Project

In 1992, Graham Bevis, Hampshire's county inspector for IT at the time, saw the potential for using multimedia in education but recognised that virtually no research had been done into what this would mean for teachers and students in the classroom.

From his position as a supplier to the British education market, Sam Wauchope, managing director of Acorn, was interested in the same question, and together the two men set up the Horizon Project.

The scale of this project was significant. It ran for a whole academic year and involved hundreds of pupils, aged from five to 16, in around forty Hampshire schools.

The aim was to explore how multimedia can enhance children's learning, and to see whether multimedia offers teachers a medium through which they can develop resources to support teaching and learning. However, Bevis, and his successor Martyn Wilson, were strongly influenced by the ideas of Professor Stephen Heppell of Anglia Polytechnic University and these theories were fed into the research.

Heppell has suggested that there are three basic stages in the use of multimedia: a 'narrative' stage in which pupils watch and note; an 'interactive' stage in which pupils choose and do; and a 'participative' stage in which pupils contribute and create.

In the Horizon Project there was a very positive emphasis on the process of creating multimedia applications, to see what schools could develop for themselves. The only proviso was that all material had to have educational value and demonstrate clear links with the National Curriculum.

Martyn Wilson explains, 'We do not regard someone as being fully literate and complete until they can create their own paper-based materials – including words, colours and pictures – to communicate with others.

Paper-based media require authorship, and so do electronic media. For information to live in the minds of its readers, it must be searched, considered, brought together, added to, re-authored and re-presented – with a sense of audience.' This is what the project's participants attempted to do.

Aside from the company's sponsorship, Acorn equipment was the obvious choice for the work. Hampshire is still very much an 'Acorn authority' and with the Archimedes, schools had a computer which was already set up for multimedia.

All models have graphics and audio capabilities, Arm chips offer plenty of processing power and Risc OS is intuitive and easy to use. During the course of the project Acorn also launched its Multimedia Expansion Unit, an expansion box with a built-in CD-Rom drive, and the Replay DIY Kit for integrating moving video images.

Schools could use whatever combination of hardware and software they already had, supplemented by extra equipment – for example Oak Recorders for importing sounds or Ion cameras for taking

Case Study 1: Roman Soldier

Under the supervision of IT co-ordinator Jan Field, a group of seven to nine-year-olds at Peel Common Junior School in Gosport created a multimedia resource module entitled *Roman Soldier*.

It relates specifically to the National Curriculum Key Stage 2 history core study unit Invaders and History, and focuses on the life of a Roman soldier.

For one term, the children spent one morning a week researching, developing and producing the application. They had already completed the initial stages when the living history group Legio Secunda Augusta arrived for a visit. This gave them the opportunity to interview two 'real' Roman soldiers and a noble lady first hand.

Over the course of the project Jan witnessed her pupils developing new research and computer skills. She says, 'The children were so enthusiastic that it was infectious and both teachers and other pupils were drawn in.

'I also found that once the children had learned how to use *Genesis*, they would go off and produce their own multimedia material, just for the sheer thrill of it!'



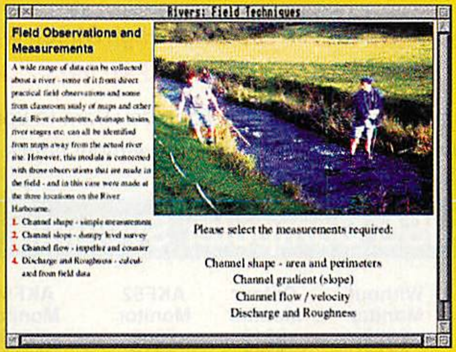
Case Study 2: Rivers

The multimedia application *Rivers: Some Aspects Through Field Study* was produced by Peter Milford, director of learning resources at St Vincent Sixth Form College in Gosport.

It was designed for A-level geography students and is based on one of the activities run by the Field Studies Council Centre at Slapton Lee in Dartmoor.

***Rivers* is an introduction to a day's study of the River Harbourne and the program covers everything from collecting data to calculating the channel shape, slope, flow velocity and discharge of the river water.**

It combines photographs taken with the college's Ion camera with images converted from film and video, digitised Ordinance Survey maps and computer graphics created with *Paint* and *Draw*. Although it took over a hundred hours to plan and produce,



Peter is convinced that it was worth the effort. He says, 'Every year three-quarters of our students come on the geography field trip and *Rivers* is already being used as an extremely effective introduction to the project. We have also found it very useful as a revision tool on return to the classroom.'

digital pictures – borrowed from the county, if necessary.

More than eighty multimedia applications were created under the auspices of the project, covering a wide range of topics and structures.

There are effective interactive stories such as *The Adventures of Freddy Frog*, written by a group of eight and nine-year-olds from St James First and Middle School, Emsworth, and there are sophisticated resources, such as *Hitler*, created by teachers Jane Jenkins and Graham Anderson of Itchen Sixth Form College, which incorporates digitised propaganda posters, sound samples of Hitler's speeches and documentary footage of Nazi party rallies.

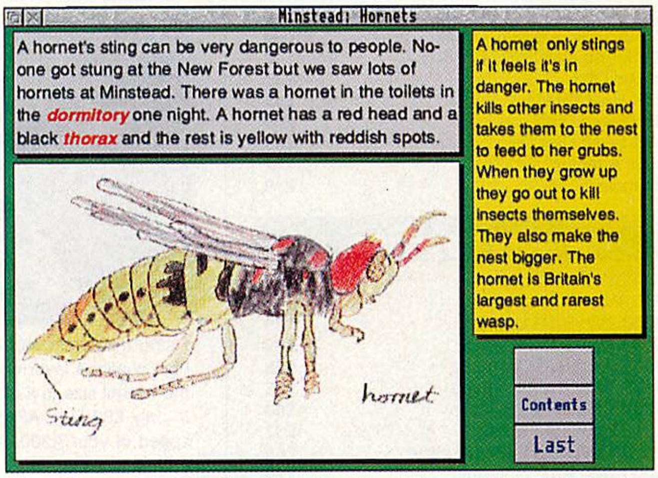
The largest application produced by pupils in the Horizon Project is *The Oompa-Loompa's Guide to Theme Parks*, which weighs in at 118 *Genesis* pages and takes up over 4Mb of memory.

This was developed by three classes at Balksbury Junior School, Andover, and is a proposal for turning a vacant site next to the school into a theme park, with five separate areas enclosing rides and facilities.

The varied activities suggested by the program range from model-building to exercises for PE. By contrast, there are only four pages in *System Designer* by Laurence Boulter, a teacher from Milbrook Secondary School, Southampton.

However, the application contains sixty *Draw* files and a handful of text files and sprites, which allow the users to design on-screen transistor circuits in a choice of modes. Chatting with some of the students involved in the project, it is clear that they have all enjoyed the work immensely. They can talk articulately about their applications and what they were trying to achieve and are extremely confident with the technology.

The Horizon Project was undoubtedly a success but what have the educationalists learnt about the use of multimedia for teaching and learning?



The Minstead application from Isambard Brunel Middle School

The researchers found that using multimedia extends pupils' skills in gathering information, improving the accuracy and quality of their data. Consequently they learn information effectively and in a non-linear way.

With multimedia, pupils tend to be more critical of their work but a stronger sense of audience motivates them and gives them confidence in what they produce. By and large, the teachers involved also enjoyed working with multimedia, but the activities demanded a great deal of extra-curricular time.

Some observed that neither they, nor their pupils, could sustain the level of involvement required for any length of time without jeopardising other commitments. Also, because using multimedia requires a degree of flexibility, primary schools found it easier to integrate the activity into their timetables than secondary schools did.

The project also raised issues of assessment and there is, as yet, no way in which multimedia applications can be formally assessed; a paper printout cannot do justice to material which is dynamic and interactive.

Martyn Wilson is particularly concerned that assessment practices are archaic. He argues that the education system must 'acknowledge how the ways we think and learn have been changed by the use of IT'. In some respects the Horizon Project has raised more questions than it has answered and there is certainly a need for further research, but the potential of this technology in education has been firmly established.

If you want to see the results for yourself, Hampshire Microtechnology Centre has published a CD-Rom containing all the applications, plus notes for teachers on hardware requirements and National Curriculum links. It costs £5.99 for the report, and £19.99 for the CD-Rom and report (all ex. VAT) from HMC on (0705) 378266.

Horizon Project Objectives

- To show the educational potential of multimedia and provide examples of what can be done.
- To generate multimedia applications and resources for use in the classroom, with clear National Curriculum links relevant to a variety of subject areas.
- To encourage pupils to practise the skills of sorting, looking at and acquiring relevant information from an educational resource.
- To encourage pupils to work collaboratively to produce study projects using multimedia.
- To encourage pupils to create their own multimedia applications.
- To encourage schools and pupils to share ideas and learn from each other.

Archi/A3000 Add-Ons

• A3000 I/O – User/Analogue/IIC (WE)	£35
• Colour Card Gold (CC)	£239
• **Floating Point Accelerator – A540/A5000 (Acn)**	**£95**
• Ethernet Card for A300/400 (RiscDv)	£139
• Ethernet Card for A3000/4000 (RiscDv)	£139
• Mono Real-time Digitiser (WE)	£75
• RISC OS Upgrade for Digitiser (WE)	£25
• Archi Disc Drive Interface (WE)	£19
• Backplate/Lead/Switch for above (WE)	£12
• 386 1Mb PC Card – A3020/A4000 (Acorn)	£225
• 486 4Mb PC Card – A3020/A4000 (Acorn)	£420
• Spectra Colour Scanner (RiscDv)	£549
• Microlin FX Pocket Fax/Modem (Pace)	£199
• I/O Podule – User/Analog/1Mhz (Acorn)	£79
• Archi I/O Card – Analog/User (WE)	£55
• A3000 User Port/MIDI Card (Acorn)	£42
• A3000 Serial Upgrade (Acorn)	£19
• MIDI Expansion Card (Acorn)	£65
• MIDI Add-On to I/O Podule (Acorn)	£27
• MEMC1A Upgrade (WE)	£29
• 4 Podule Backplane (WE)	£25
• Fan for backplane (WE)	£10
• 8-bit SCSI Card (Lingenuity)	£129
• 16-bit SCSI Card (Lingenuity)	£149
• 16-bit SCSI Card (Acorn)	£249
• ST506 Hard Disc Podule (WE)	£69
• Scanlight 256 for A300/400 (CC)	£188
• Scanlight 256 for A3000/4000 (CC)	£198
• Scanlight Professional (CC)	£549
• Chroma 500 Genlock Card (Wild Vis)	£419
• Chroma 150 PAL Encoder (Wild Vis)	£170
• Chroma Genlock Card (Wild Vis)	£209
• Scanlight Video 256 (Wild Vis)	£199
• Hawk V9 MKII Digitiser (Wild Vis)	£189
• Eagle M2 Multimedia Card (Wild Vis)	£275
• HiVision Colour Digitiser (HCCS)	£149
• Ultimate Expansion – A5000 (HCCS)	£39
• Ultimate Expansion – A3000 (HCCS)	£39
• Ultimate Expansion – A3010 (HCCS)	£41
• Ultimate Expansion – A3020 (HCCS)	£38
• Ultimate uPodule – SCSI (HCCS)	£69
• Ultimate uPodule – Vision Digi (HCCS)	£79
• Ultimate uPodule – Analogue (HCCS)	£29
• Ultimate uPodule – Serial Port (HCCS)	£49
• Ultimate uPodule – MIDI (HCCS)	£49
• Ultimate uPodule – Scanlight 256 (CC)	£229
• External 3.5" Disc Drive for Arc (WE)	£95
• External 5.25" Disc Drive for Arc (WE)	£89
• Econet Module for Archimedes (Acorn)	£42
• Econet Module for A3020/A4000 (Acorn)	£49
• Econet Module for A4 Notebook (Acorn)	£49
• Ethernet Card III for Archi (Acorn)	£149
• PowerPad single Joypad (Gamesware)	£25
• PowerPad dual Joypad (Gamesware)	£34
• PSU Kit for Ultimate Expansion	£30

Multimedia & CD-ROM

• Cumana 300 CD-ROM Drive/Controller	£339
• Cumana 300 CD-ROM Pack 1	£424
• Cumana 300 CD-ROM Pack 2	£509
• Cumana 600 CD-ROM Drive only	£424
• Cumana 600 CD-ROM Drive/Controller	£509
• Cumana 600 CD-ROM Pack 3	£594
• Cumana 600 CD-ROM Pack 4	£680
(Cumana packs include Drive, Interface, Cables, Stereo Speakers and a selection of CDs)	
• Multimedia Expansion Unit	£485
• Multimedia Expansion & 8-bit SCSI	£585
• Multimedia Expansion & 16-bit SCSI	£585
• Toshiba External CD-ROM Drive	£385
(See software page for CD titles)	

LaserDirect Printers

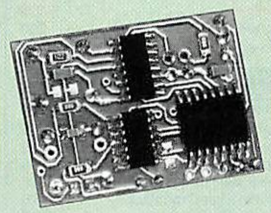
Print at high speed up to 600 dpi resolution with Computer Concepts' LaserDirect printers.

• LaserDirect Card for LBP-4+	£379
• LaserDirect Hi Res printer (4ppm)	£799
• LaserDirect Hi Res printer (8ppm)	£1099

Archi Accessories

• A3000 Dustcover – micro only	£5
• A3000 Dustcover – micro & monitor	£9
• A3010/3020 Dustcover – micro only	£5
• A300/400 Dustcover – micro & monitor	£9
• A300/400 Keyboard Dustcover	£5
• A5000 Dustcover – micro & monitor	£9
• 14" Monitor Dustcover	£6
• Perspex Keyboard Cover	£8
• A3000 Monitor Stand (WE)	£15
• A3000 Monitor Stand (Acorn)	£29
• A3000 Shoulder Bag	£10
• A3000 External Podule Case	£15
• A4 Notebook Carry Case	£35
• A4 Notebook Battery Pack	£49
• A4 Notebook Mains Adaptor	£59
• Archimedes Keyboard Extension Lead	£8
• Archimedes Replacement Mouse (WE)	£29
• Quest Tracerball for Archi (WE)	£26
• Marconi Trackerball for Archi	£69
• Archi Mouse Port Splitter	£10

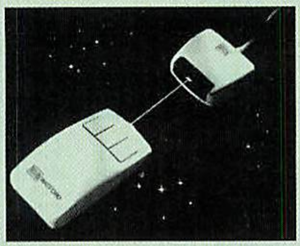
VIDC Enhancer



The Watford VIDC Enhancer for the Archimedes 300/400 and A3000 computers, caters for all types of Multiscan and VGA monitors.
A disc of utilities is supplied to allow you to define your own modes, and change existing ones. A desktop mode selector is also supplied.
The Multiscan enhancer is for use with monitors with composite sync inputs, whereas the VGA enhancer is used with VGA, SVGA monitors with separate sync inputs. (A300 series models may require modification for VGA enhancer).

• Multiscan VIDC Enhancer	£19
• VGA VIDC Enhancer	£35

Archi Cordless Mouse



Features
- Infra-red signal transmission
- High resolution 200dpi
- Anti-static silicon rubber coated ball
- Auto standby mode after 5 seconds inactivity
- Auto power-off after 20 minutes inactivity

£26

Concept Keyboards

• A4 Standard	£89	• A3 Standard	£95
• A4 Primary	£94	• A3 Primary	£99
• A4 Designer	£104	• A3 Designer	£104
• Universal 2010 Keyboard A4			£104
• Universal 2010 Keyboard A3			£107
• User Port cable for 2010 Keyboard			£9
• Arc Serial cable for 2010 Keyboard			£9
• Concept Designer software for Arc			£22

Scan256 Hand Scanner

If you need a 256 grey scale hand scanner for your Archimedes then look no further.
Scan256 gives you up to 256 grey levels at a maximum resolution of 400dpi and is supported by state-of-the-art software. This makes it the only sensible scanning and image processing solution for the Acorn 32-bit range of machines.

Features include:
- More than one copy of an image in memory at once.
- Highly advanced image processing tools.
- Convolution digital filtering with over 100 filters.
- Adjustable scale and size during scan.
- Save images in industry standard formats.
- True brightness, contrast and gamma controls.
- Selectable scanning modes.
- 105mm scanning width.
- Ability to shear and rotate the image.

only £159

• Scan256 for A3000 (external) (ring for availability)	£169

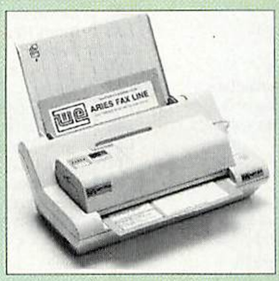
Note: Scan256 is not suitable for A3010/A3020 or A4000 computers.

Archi MKII Hand Scanner

Watford's Midi hand scanner for the Archimedes and A3000 has a maximum resolution of 400dpi, and a scan width of 4". As you scan the image the results are displayed on screen in real time. You can then save the image at full resolution to get the best quality output or at screen resolution to save on memory. The software is supplied on ROM, so there are no discs to load. Features include: cropping and scaling images, X flip and Y flip, and edge detection allows you to transform solid images into outlines.

• A300/400/A5000 version	£89
• A3000 external version	£99
• v1.10 ROM Upgrade for RISC OS 3	£20

Archi A4 Scanner



The 216mm scanning width can cope with both desktop scanning of single sheets, photographs, etc, with its detachable sheet feeder, or used as an A4 wide hand scanner. 64 grey levels are produced from the scanner at resolutions up to 400dpi. The software included on ROM allows you to adjust contrast and brightness of the scanned image, rotate, shear and cut out sections of the image. The scanner uses a green light source which gives improved contrast on images over conventional red light scanners.

• A4 Scanner for A300/A400/A5000	£189
• A4 Scanner for A3000 (external)	£199
• Sheet Feeder for A4 Scanner	£69

Educational Software

10 out of 10 Early Essentials	£18
10 out of 10 Junior Essentials	£18
10 out of 10 Maths - Number	£18
10 out of 10 Maths - Algebra	£18
10 out of 10 Maths - Statistics	£18
10 out of 10 English	£18
10 out of 10 French	£18
10 out of 10 Dinosaurs	£18
10 out of 10 Driving Test	£18
Animal Rescue	£22
Animated Alphabet	£18
Animated Numbers	£18
An Eye for Spelling	£31
Arcventure I – Romans	£24
Arcventure II – Egyptians	£24
Arcventure III – Vikings	£24
Around the World in 80 Days	£TBA
Aztecs	£37
Badger Trails	£34
Best Four Adventure	£34
Best Four Language	£34
Best Four Maths	£34
Body	£17
Bookbinder	£43
Bookstore – Primary	£35
Bookstore –Secondary	£52
Britain since 1930	£26
Bumper Disc 1	£14
Bumper Disc 2	£14
Circus	£14
Concept Keyboard Designer	£22
Connections	£27
Concept Kids	£21
Converta Key	£9
Crystal Rain Forest	£34
Desktop Stories	£35
Dream Time	£19
Export, Trade and Industry	£34
Farm (5-7 years)	£18
Fleet Street Phantom	£22
Food for Thought	£17
Fun School 3 Blue (under 5)	£17
Fun School 3 Red (5-7 years)	£17
Fun School 3 Green (over 7)	£17
Fun School 4 Red (under 5)	£17
Fun School 4 Green (5-7 yrs)	£17
Fun School 4 Blue (over 7)	£17
Geordie Racer	£24
Glimpse	£8
Graph IT	£17
Granny's Garden	£TBA
Hilighter	£30
Insight	£68
Investigating Maths	£34
Jigsaw	£18
Landmarks – Aztec	£17
Landmarks – Civil War	£17
Landmarks – Columbus	£17
Landmarks – Egypt	£17
Landmarks – Elizabeth I	£17
Landmarks – Rainforest	£17
Landmarks – Tudors & Stuarts	£17
Landmarks – Victorians	£17
Landmarks – World War II	£17
Linkword – French	£32
Linkword – German	£32
Linkword – Spanish	£32
Magpie	£58
Making of the UK	£35
Mapping Skills	£25
Mapventure	£22
Medieval Realms	£35
Microbugs	£24
Money Matters	£14
Nature Park Adventure	£24
Naughty Stories vol.I	£48
Naughty Stories vol.2	£48
Numerator	£33
Picture Book	£14
Podd	£23
Recall	£36
Seelinks – Ourselves	£26
Seelinks – Pondwatch	£34
Seelinks – Tourism	£54
Seelinks – Transport	£34
Selladore Tales	£23
Settlement	£30
Snippet	£31
Space Mission Mada	£22
Splash	£18
Stig of the Dump	£21
Story Starts	£24
Teachers Cupboard	£24
Teddy Bears Picnic	£22
Topographer	£62
Victorians	£19
Viewpoints	£33
Wizards Revenge	£16
World Maker	£46
World Map Study	£59
Worst Witch	£21

Sales Hotline
0582 745555

Games

Adventures of Sylvia Lane	£20
Air Supremacy	£13
Apocalypse	£14
Arcade 3 Compilation	£11
Battle Chess	£21
Birds of War	**£25**
Black Angel	£23
Boogie Buggie	£14
Break 147 & Superpool	£24
Bug Hunter in Space	£9
Carnage Inc.	**£20**
Cataclysm	£15
Champions Compilation	£21
Chess 3D	£14
Chocks Away Compendium	£26
Chocks Away Extra Missions	£17
Chopper Force	£18
Crystal Maze	**£29**
Cyber Chess	£25
Cycloids	£17
Demons Lair	£18
Dungeon	**£24**
Ego Repton 4	£17
Elite	£31
Enter the Realm	£17
E-Type Compendium	£17
E-Type Extra 100 Miles	£14
Fervour	£18
F.R.E.D.	**£17**
Galactic Dan	£14
Games Wizard	£17
Gods	£18
Grevious Bodily Arm	£14
Haunted House	**£20**
Heimdall	£22
Hero Quest	£21
Holed Out Compendium	£17
Interdictor 2	£22
Ixion	£22
Jahangir Khan Squash	£19
James Pond	£18
James Pond 2 - Robocod	**£21**
Lemmings	£18
Lemmings 2 - Tribes	**£22**
Lotus Turbo Challenge II	£18
Mad Professor Mariati	£14
Magic Pockets	£22
Master Break	£13
Man at Arms	£14
Manchester Utd in Europe	£18
Nebulus	£18
Oh No! More Lemmings	£14
Omar Sharif's Bridge	£18
Pandora's Box	£17
Pipe Mania	£15
Play It Again Sam 1	£17
Play It Again Sam 2	£17
Play It Again Sam 3	£17
Populous	£21
Powerband	£14
Powermonger	£24
Quark	£19
Quazar	£10
Real McCoy 2	£21
Real McCoy 3	£21
Real McCoy 4	£21
Return to Doom	£16
Repton 3	£14
Saloon Cars Deluxe	**£24**
Sensible Soccer	£22
Sim City	**£21**
Simon the Sorcerer	£31
Stunt Racer 2000	**£24**
SWIV	£18
Sylvia Lane	**£18**
Striker	£17
Technodream	£18
The Last Ninja	£18
Twin World	£13
Virtual Golf	**£24**
Warlocks	£24
Worldscape	£16
White Magic 2	£15
Xenon 2	**£21**
Zool	**£18**

TOP TEN GAMES

1 Lemmings 2 - Tribes	£22
2 Zool	£18
3 Gods	£18
4 Sensible Soccer	£22
5 Turbo Challenge II	£18
6 Chocks Away	£26
7 Lemmings	£18
8 Populous	£21
9 Saloon Cars Deluxe	£24
10 SWIV	£18

DTP

Impression Junior	£63
Impression II	£105
Impression Borders Disc	£12
Impression Business Sup.	£38
Impression Style	**£85**
Impression Publisher	£135
Impression Publisher OPI	£223
Ovation	£82
Desktop Thesaurus	£16
Equasor	£36
Font Pack - Avant Garde	£23
Show Page	£139
Spellmaster	£42
Sleuth OCR	£40
Type Studio	£37

Word Processors

DeskEdit 3	£24
Data Word	£14
Easiwriter II	£114
Easiword Plus	£42
Pendown	£45
Pendown Plus	£67
Primeword	£50
Talking Pendown	£55
Wordz	**£84**
WordWorks	£39

Spreadsheets

Eureka	£95
ProSheet	£39
Resultz	**£105**
Schema	£89
Schema 2	£135

Databases

DataVision	£66
Flexifile	£68
Genesis Project	£49
Genesis Professional	£119
Knowledge Organiser	£75
Masterfile III	£45
Multistore v2.01	£99
Pinpoint	£64
Pinpoint Junior	£23
S-Base Developer	£139
S-Base Developer Plus	£299
S-Base Personal	£69

Integrated

Acorn Advance	**£85**
Desktop Office	£69
Fireworkz	£145
Pipedream 3	£70
Pipedream 4	£117

Languages

Acorn Desktop Assembler	£118
Acorn Desktop C	£179
Acorn PC Soft	£89
Control Logo	£20
Easy C	**£45**
Logotron Logo	£45
RiscBASIC Compiler	£66
RiscFORTH Compiler	£66
Robo Logo	£37

Printer Drivers

Expression PS	£19
Citizen Colour Driver - OS 2	£15
Deskjet 500C/550C Driver	£15
Epson JX Printer Driver	£15
Star Colour Driver - OS 2	£15
TurboDriver - Canon BJ	£42
TurboDriver - Epson Stylus	£42
TurboDriver - HP	£42

CD Software

Acorn Education Directory	£29
Artworks	£165
Artworks Clip Art	£19
British Birds	£150
CD – 4 Disc Set	£149
CD Francais	£120
Creepy Crawlies	£90
Dictionary of Living World	£175
Dinosaurs	£124
Grooves	£90
Hutchinson Encyclopaedia	£99
Illustrated Holy Bible	£23
Illustrated Shakespeare	£23
Image Warehouse	£53
Revelation II	£98
Sherlock Holmes	£23
Space Encyclopaedia	£57
Really Useful CD v1	£47
Really Useful CD v2	£47
Times & Sunday Times	£195
Woodland	£144

Graphics

Artisan 2	£42
Autosketch II	£65
ArcTist	£14
Atelier	£59
Artworks	£115
Chartwell	£24
Craftshop 1	£18
Craftshop 2	£18
Euclid 2	£59
Film Maker	£55
GraphBox	£54
GraphBox Professional	£102
Illusionist	£68
Image Animator	£65
Kid Pix	**£34**
Plot	£66
Poster	£74
Presenter GTI	£65
PrimeArt	£46
Pro Artisan 2	**£99**
Render Bender II	£89
Rephorm	£49
Revelation II	£74
Revelation Image Pro	£125
Titler	£114

CAD

Arc PCB v1.7	£79
Arc PCB Professional	£169
Arc PCB Schematics	£229
CADet	£125
SolidCAD	£65
SolidTools	£169
PowerRouter	£129
Excellon Drill	£53

Accounts

Business Accounts System	£275
Business Accounts Modules	£85
Payroll Manager	£66
Prophet Accounts	£131
Home Accounts	£33
Financial Accountant	£225
Shareholder Professional	£195
Micro Trader System	£275
Micro Trader Modules	£75
PlanING	£95
ProjectING	£295

Site Licences

Advance Primary Licence	£181
Advance Secondary Licence	£440
Artworks	£540
Impression Style	£435
Impression II	£542
Ovation DTP	£475
Pinpoint	£379
Pipedream 4	£695
S-Base	£399

Communications

ArcComm 2	£38
ArcTerm 7	£64
Hearsay II	£75
ArcFax	£25

SPECIAL OFFER

Pace Microlin pocket FAX/Modem, supplied with ArcFax and ArcTerm7 software. Complete with connecting cables, etc.

only £199

Software Offers

• Acorn DTP	£20
• First Word Plus	£15
• Lemmings	£12
• Chuck Rock	£10
• Quest for Gold	£9
• Pacmania	£9
• Gods	£15

On-Site Warranties

1yr - A3010, A3020 and A4000	£25
1yr - all A5000 models	£34
3yr - A3010 and A3020 FD	£42
3yr - A3020 HD and A4000	£51
3yr - all A5000 models	£68

Miscellaneous

Armadeus	£58
Recordz	£32
Rhapsody 2	£45
Rhapsody 3	**£78**
AUN/Level4 Fileserver	£369
Speech!	£17
Investigator 3	£49
Font Pack 1	£10
Font Pack 2	£10
Font Pack 3	£10
MultiFS	£29
Notate	£57
Vox Box	£45
Score Draw	£45

Software Bundles

• **Arcventure** Romans, Egyptians, Vikings	**£65**
• **Linkword** French, German, Spanish	**£87**
• **Lemmings &** Oh No! More Lemmings	**£27**
• **Crystal Maze &** Games Wizard	**£44**
• **Artworks &** Clip Art CD	**£119**
• **Impression II &** Business Supplement	**£130**
• **PC Emulator &** Acorn Advance	**£155**
• **Ovation & Thesaurus**	**£69**

Books

!Help 3 - RISC OS 3	£10
!Help - RISC OS 2	£10
!Help - Draw	£16
Advanced BBC User Guide	£10
Archimedes Assembly Lang.	£15
Archimedes Operating Syst.	£15
A3000 Technical Manual	£29
A5000 Technical Manual	£65
A3010 Technical Manual	£30
A4 Portable Handbook	£7
A4 Technical Manual	£65
A4 Welcome Guide	£10
A540 Technical Manual	£65
Acorn to PC	£7
Ansi C Rel.4 User Guide	£25
Artworks Made Easy	**£15**
Archi Games Maker Man.	£15
ARM Technical Data Guide	£14
BBC BASIC User Guide	£20
BASIC V - Dabhand Guide	£10
Budget DTP on the Arc	£13
C: A Dabhand Guide 3rd Ed.	£17
Control on the Archimedes	£10
First Impressions	£28
File Handling for All	£10
Good Impressions	£25
Graphics on the Arm	£15
Impression II - Dabhand Guide	£15
Mastering 1st Word Plus	£14
Master 128 Ref Man. Part 1	£14
Master 128 Ref Man. Part 2	£14
Master 128 Advanced Ref.	£5
RISC OS Style Guide	£10
RISC OS 2 Prog. Ref. Man.	£79
RISC OS 3 Prog. Ref. Man.	£99
RISC OS 3 Apps/User Gd.	£20
RISC OS 3 First Steps	**£15**
Wimp Prog. for All	£13

Home Office

Includes Pipedream 4, PC Soft with DR DOS 6, Easiwriter, Datapower, plus demonstration software.

only £85

Learning Curve

Includes Acorn Advance - integrated software package, PC Soft with DR DOS v6, plus some demonstration software.

only £42

Credit Card/Sales: 0582 74 55 55 Sales/Inquiries: 0582 48 77 77

Despite appearances, we offer you very little choice.

At **Watford Electronics**, we will only offer any product when we are convinced that we can sell it at the best price with the right level of support. It's an approach that our thousands of customers appreciate, for we are now celebrating twenty-one years in the business. So as you look through all the lists of items that follow and discover how competitive we are, you'll discover just how little choice you have. **You simply must call us.**

Laser Printers

All Laser printers (excluding HP Lasers) include 12 Months On-Site maintenance

Brother HL4	4ppm	£398
Brother HL6	6ppm	£422
Canon LBP4+ 1.5M RAM	4ppm	£635
Canon LBP4U	4ppm	£485
Canon LBP-8 Plus IIIR	8ppm	£1559
Canon LBP-8 IV 600DPI	8ppm	£925
Epson EPL5000	6ppm	£433
Epson EPL-5200	6ppm	£483
Epson EPL-7500 PS	6ppm	£1135
HP Laserjet 4 ML	4ppm	£747
HP Laserjet 4	8ppm	£962
HP Laserjet 4L	4ppm	£469
HP Laserjet 4M	8ppm	£1286
HP Laserjet 4P	4ppm	£717
HP Laserjet 4MP	4ppm	£979
NEC610 Super Script	6ppm	£422
NEC Silentwriter S102	6ppm	£914
NEC Silentwriter S102P PS	6ppm	£1284
OKI OL400EX	4ppm	£385
OKI OL410EX	4ppm	£523
OKI OL 830PS	8ppm	£799
Panasonic KX-P4400	4ppm	£360
Panasonic KX-P4410	5ppm*	£424
Panasonic KX-P4430	5ppm*	£530
Panasonic KX-P5400 PS	4ppm	£599
Panasonic KX-P4440	10ppm*	£779
Star LS-5	5ppm	£442
Star LS-5 EX (RISC Based)	5ppm	£510
Star LS-5 TT True Type+Mac	5ppm	£732

*2 years on-site warranty

Laser Toners

Canon 2, 3 & 4	£52	KX-P4400/5400	£12
Canon LBP4U	£55	KX-P4450/50i/55	£19
Canon 8/Star LP8	£56	KX-P4410/20/30	£29
Canon LBP8-IV	£72	NEC 290	£78
Epson GQ	£12	NEC S60/60P/62P	£89
EPL 40/41/4300	£63	OKI OL400/800	£21
EPL 5200	£90	OKI OL400e	£17
EPL 71/7500	£117	Star LP4	£48
HPII/D, III/D	£55	Star LS5	£63
HP IIP, IIIP	£48	VM800 8K pages	£99
HP4/4M	£72	Qume Crystal(3)	£99
HP Laserjet 4L	£49		

Laser RAM Upgrades

Type	1M	2M	4M	8M
HPIIP; III/P/D	£54	£90	£132	
HPII & IID	£65	£110	£175	
HPIIIsi	£57	£85	£158	£299
LJ4/4L/4M	£65	£79	£145	£299
EPL40/41/4300	£70	£110	£205	
EPL 50/5200	£–	£115	£215	
KX4410/30	£70	£110	£185	
KX4420/50i	£65	£89	£149	
KX4400	£89	£129	£239	

Jetpage Postscript Cartridge

- HP IIP/IIIP £225 ● IID & III £227

Various Add-Ons

- HP Premier Font Collection £19
- Laserjet Various Font C'tridges from £45
- HP Postscript Module for LJ4 £270
- Laserjet 4 Powered envelope feeder £199
- Jetdirect Ethernet Card for Laserjet IIIsi/4/4Si £339
- 500 Sheet paper cassette (3rd Bin) £205
- HPIIP/IIIP Lower Cassette Tray £115
- Canon LBP-4 Lower Cassette Tray £96
- Ozone Filter P4420 £9; P4450/55 £20

Panasonic Printers

	Printer	CSF	Ribbon
KX-P1170	£91	£59	£6
KX-P1624	£210	£126	£8
KX-P1695	£267	£126	£6
KX-P2023	£122	£155	£8
KX-P2123M	£132	£69	£7
KX-P2124	£210	£89	£7
KX-P2624	£255#	£126	£8

#Includes 12 months on-site warranty

- Colour Kit for KX-P2180; KX-P2123 and KX-P2124 £30
- Dustcover for 80 column printers £6
- Serial Interface for above Printers £46
- Black Ribbons for P1081, 1180, 1124 £7
- 32K Buffer for above Printers £16

P.S. Our original Panasonic Ribbons are guaranteed to last 3 million characters.

Canon Bubblejet Printers

	Printer	CSF	2nd Bin	Ink Cart
BJ10SX	£154	£43	–	£15
BJ200	£202	–	–	£16
BJ230	£276	–	–	£16
BJ300*	£322	£88	£88	£11
BJ330*	£372	£92	£79	£11
BJC600	£418	–	–	£7.50
BJC800	£1075	–	–	£16

Black Cart. for: BJC600 £6; BJC800 £13

- Optional Battery Pack for BJ10EX/SX £33
- BJ10E/10EX/10SX/200/230 Jumbo Ink Refill pack (twice cartridge volume) £12

* includes 12 months on site warranty

Citizen Printers

120D+ parallel £90		Swift 90	£115
120D+ Serial	£109	Swift 90C	£122
ABC 24 pin Mono	£115	Swift 200	£142
		Swift 200C	£187
ABC 24 pin Colour	£135	Swift 240	£170
		Swift 240C#	£187

2 years warranty on Citizen Printers.

FREE Windows Printer Driver

- Swift 24 Ribbons: Black £4 Colour £13
- Cut Sheet Feeder for 80 col. printers £75
- Citizen 120D Ribbons £3.50

Star Printers

	Printer	CSF	Ribbon
LC15	£179	£135	£5
LC100C	£103	£65	£9
LC24-15 Mk2	£240	£135	£5
LC24-30C	£169	£–	£5
LC24-100	£130	£69	£5
LC24-300C	£224	£–	£5
LC24-20 Mk2	£170	£65	£5
LC24-200C	£200	£65	£12
LC200 C	£147	£65	£12
SJ144 colour	£345	£–	£–
XB24-200C	£320#	£80	£12
XB24-250C	£385#	£139	£12

Includes 12 months on-site warranty

- Black Ribbons for Colour Printers £5
- Serial 8K I'face LC10/15/24/200 £52
- 32K Buffer LC/XB24-10; 15; 200 £52

Scanners

AT – HP-ScanJet IIP **£500**; IIC	£949
PS/2 – HP-ScanJet IIP **£501**; IIC	£950
HP Auto Doc Feeder IIP **£229**; IIC	£365
HP ScanJet II CX	£689
Epson GT-6500 A4 incl. Pic Publisher LE, Omni Direct Pk Port F, Interface card & Cables	£530
Epson GT 8000 A4 Scanner with Pic Publisher LE, Omni Direct & SCSI Interface Card	£745

Epson A4 Scanners: Supplied complete with Pic Publisher LE, Omni Direct OCR, Interface card & Cables

GTX6500P	£535	GTX6500S	£599
GTX8000P	£699	GTX8000S	£760

Epson Printers

	Printer	CSF	Ribbon
DFX5000C	£1095	£–	£23
FX870	£228	£47	£4
FX1170	£284	£69	£6
LQ100	£119	£–	£4
LQ150 Col	£165	£–	£–
LQ570+	£189	£45	£4
LQ870	£335	£45	£6
LQ1070	£289	£69	£6
LQ1170+	£404	–	£10
LQ2550	£667	£360	£6
LX100	£109	£–	£4
LX400	£91	£69	£4
LX850+	£134	£69	£4
LX1050	£174	£125	£6
SQ870	£415	£170	£23
SQ1170	£560	£155	£23
Stylus 300	£178	£–	£10
Stylus 800	£185	£–	£10
Stylus 1000	£344	£–	£10

Epson RS232 Interface

Standard **£28**; +8K Buffer **£75**

- LQ100 Tractor Feed £29
- FX850/LQ800/850 Tractor Feed £69
- FX/LQ1050 Tractor Feed £85
- LQ2500/2550 Tractor Feed £90
- Dustcovers for 80 col printers £6

NEC Printers

	Printer	CSF	Ribbon
P22Q	£134	£59	£6
P3Q	£–	£–	£–
P32Q	£245	£79	£6
P72	£386	£115	£8
P90	£562	£115	£8

- Black Ribbons P20; P32 £6
- Ribbons P60/70/P90 Black **£8**; Colr £14
- P60/70 Colour Option Kit £59
- CSF for P20 **£59**; P60 **£89**; P70 £89

Universal Printer Sharers

Connect up to 4 Micros to 1 printer or 4 Printers to 1 Micro with our combined, Sharer/Changer switch boxes.

Standard Low Cost Sharers

Connects	Serial	Parallel
● 2 to 1	£8	£9
● 3 to 1	£11	£12
● 4 to 1	£15	£16

Professional Sharer Units

Connects	Serial	Parallel
● 2 to 1	£12	£13
● 3 to 1	£15	£17
● 4 to 1	£24	£26

Auto Printer Sharer Switch

Connects	Serial	Centronics
● 2 to 1	£27	£29
● 4 to 1	£44	£45
● 8 to 1	–	£75

256K Multi Spooler

These Parallel Auto printer sharer switches have built-in 256K Buffer.

- 2 In / 2 out £99 ● 4 In / 2 out £115
- 8 In / 1 out £149

(Cables for all printer switches are from £5 each please specify the type required when ordering.)

Compact Converter Unit

Serial to Parallel & Parallel to Serial £32

24-Hour Credit Card Order Line
0582 74 55 55

Hewlett-Packard Printers

DJ310 Mono	£167	D-Writer 510	£189
DJ310 Col. Kit	£28	D-Writer 500C	£235
DJ510	£189	D-Writer 550C	£375
DJ500C	£235	Paintjet XL300+	£1630
DJ550C	£346	Quiet Jet+	£299
DJ1200C	£POA	DJ Portable+CSF	£206
DJ1200C PS	£1373		

\+ Includes 12 months on-site warranty

3 years on-site maintenance available as follows:

DeskJet & DeskWriter mono £55
DeskJet & DeskWriter colour £65

- Paintjet Cartridge Black £17; Colour £27
- DJ Portable CSF £49; Carrying Case £49

Desk Jet 500 Accessories

- Ink Cartridges Black £13; Colour £21
- High Capacity Ink Cartridges Black £20
- Ink refill Double Pack (JetFill) £10
- Ink refill High Capacity (JetFill) £13
- 256K RAM Cartridges 510/500C/550 £49
- Epson FX Emulation Cart.(500 mono) £45
- DJ 500/510/550 Dust Covers £6
- 636G 50 x Transparencies A4 £35
- 636J 50 x Glossy Paper A4 (also XL) £35
- 630Z 50 x Cut Sheet Paper A4 £15
- 500 Sheets A4 90gms Cartridge paper £7

Plug In Font Cartridges for DJ 500

22706B - Prestige, Elite, Line Draw £55
22706C - Letter Gothic & HP Line Draw £56
22707P - Proprint Emulation Cartridges £57

Fujitsu Printers

	Printer	CSF	Ribbon
B100 Inkjet	£146	£35	£14
B200 Inkjet	£209	£35	£14
DL1150	£209	£99	£6
DL1250	£309	–	–
VM600 Laser	£529	–	–
VM600E	£769	–	–

Roland Plotters

DXY1150	£575	DXY1250	£725
DXY1350	£939	DPX2600	£POA
Sketchmate A4	£335	A3	£449

Printer Labels

(On continuous fanfold backing sheet)

1,000 90 x 36mm (Single Row)	£4.50
1,000 90 x 36mm (Twin Row)	£4.60
1,000 90 x 49mm (Twin Row)	£4.95
1,000 102 x 36mm (Twin Row)	£4.70

Laser Printer Labels on A4 Sheets

2400 – 70 x 37mm (3 Rows x 8) £15.25

Listing Paper (Perforated)

- 1,000 Sheets 9.5" x 11" Fanfold £5.50
- 2,000 Sheets 9.5" x 11" Fanfold £8
- 1,000 Sheets 9.5" x 11" NCR 2 Part £21
- 1,000 Sheets 15" x 11" Fanfold £7.50
- 2,000 Sheets 15" x 11" Fanfold £11.50
- 1,000 Sheets true A4 Fanfold 70gms £9
- 2,000 A4 Fanfold Paper £15
- 500 Sheets A4 80gms Bond £2.50
- 500 Sheets A4 90gms Cartridge for Ink Jet/Laser printers £7

Printer Leads

- PC Parallel 2m £4; 5m £8; 10m £13
- 25pin D Male/Male 2m £4; 5m £8
- Centronics Double Ended 4' £5; 6' £6
- RS232 Leads Various £POA
- PC Keyboard Extension lead coiled £5

Microvitec Monitors

Cub 1451 - 14" Medium Res for BBC	£199
Cub 3000 - 14" Medium Res for Arc	£195
Cub 1440 - 14" Multiscan for Arc	£389
Cub 1450 - 14" Multiscan for Arc	£POA
Touchtec 501 Touch Screen for BBC	£239
Touchtec 3000 Touch Screen for Arc	£POA

Acorn Monitors

AKF30 14" Med Res RGB - Grey Case	£199
AKF40 14" Med Res RGB - Cream Case	£199
AKF52 14" Multiscan Monitor	£299
AKF50 14" Hi Res Multiscan Monitor	£375

Multiscan Monitors

Eizo T240i 14"	£483
Eizo F340i-W 14"	£625
Eizo F550i 14"	£899
NEC 2A-N	£274
NEC 3FG	£360
NEC 3FGe	£449
NEC 4FGe	£479
NEC 5FG	£925
NEC 5FGe	£780
Panasonic C1381	£199
Panasonic TX-1731MAB	£616
Philips 4CM4270	£289
Philips 7CM3279	£249
Philips 7CM5279	£269
Taxan 787 14" SVGA	£229
Taxan 787LR 14" SVGA Low Rad.	£239
Taxan 789LR 14" SVGA Low Rad.	£289
Taxan 795 14" Trinitron	£465
Taxan 875+ LR 17" Low Rad.	£737

Aries A-Scan Monitor

The new Aries A-Scan Pro multiscan monitor offers high-definition flicker-free display at a price that is affordable.

- 14" high resolution colour display
- 0.28mm dot pitch, non-glare tube
- 29KHz to 70KHz horizontal frequency
- Low radiation Swedish MPRII standard
- 1280 x 1024 non-interlaced
- complete with connecting cable (15pin VGA)

£249

Aries Monitors

Aries 6000 15" Monitor

- 15" high resolution colour display
- 0.28mm dot pitch, non-glare tube
- microprocessor control
- 29KHz to 70KHz horizontal frequency
- front panel controls
- complete with connecting cable (15pin VGA)

£299

Aries 7000 17" Monitor

- 17" high resolution FST colour display
- 0.28mm dot pitch, non-glare tube
- 1280 x 1024 @ 70Hz non-interlaced
- microprocessor control
- 29KHz to 70KHz horizontal frequency
- complete with connecting cable (15pin VGA)

£575

Aries 75601 17" Monitor

- 17" high resolution FST colour display
- 0.28mm dot pitch, non-glare tube
- digital controls with LCD panel

£695

Aries 7500 17" Monitor

- 17" high resolution colour display
- 0.28mm dot pitch, non-glare tube
- 29KHz to 75KHz horizontal frequency
- front panel controls
- complete with connecting cable (15pin VGA)

£525

BBC Software

Logotron Logo (ROM)	£43
Numerator (ROM)	£39
Pendown (ROM)	£32
View 3.0 (ROM)	£45
ViewSheet (ROM)	£36
ViewStore (ROM)	£36
ViewSpell (ROM/80T Disc)	£28
InterWord (ROM)	£36
InterSheet (ROM)	£37
InterChart (ROM)	£25
InterBase (ROM)	£49
Mega3 - Word/Chart/Sheet (ROM)	£76
SpellMaster (ROM)	£42
WordAid (ROM)	£24
View Printer Driver Generator (Disc)	£12
View Printer Driver (ROM)	£29
Fun School 3 Under 5s (Disc)	£17
Fun School 3 5-7yrs (Disc)	£17
Fun School 3 Over 7s (Disc)	£17
Quest Paint (ROM/Disc)	£23
ConQuest (ROM)	£24
Quest Fonts (Disc)	£15
Quest integrex 132 Driver (Disc)	£18
Wapping Editor (ROM/Disc)	£39
Wapping Art (Disc)	£15
Wapping Fonts #1 (40T Disc)	£12
Wapping Fonts #2 (80T Disc)	£13
AMX Super Art (ROM/Disc)	£25
AMX Stop Press (ROM/Disc)	£18
Page Fonts for Stop Press (Disc)	£13
BASIC 2 (ROM)	£22

BBC Accessories

32K Shadow RAM Card	£39
Solderless ROM Board	£32
32K ROM/RAM Card	£39
64K ROM/RAM Card	£52
128K ROM/RAM Card	£83
Sideways ZIF Socket System	£18
16K Static RAM for ROM/RAM	£8
16K DRAM for ROM/RAM	£13
Battery Backup for ROM/RAM	£3
Read/Write switch for ROM/RAM	£2
Sideways RAM Utilities Disc	£8
AMX Mouse only	£25
Quest Mouse III	£25
Quest Tracerball	£25
Mouse Mat (Red, Green or Blue)	£3
Master Quad ROM Cartridge	£14
Data Duck	£14
Power Duck	£8
Single BBC Monitor Stand	£14
Double BBC Monitor Stand	£25

Spare Parts

Archimedes Spares

Archimedes Replacement Keyboard	£98
A3000 Replacement Keyboard	£35
A3000/A400 Floppy Disc Drive	£59
A5000 Floppy Disc Drive	£69
ARM2 CPU	£19
MEMC1A memory controller	£25
VIDC video controller	£39
IOC input/output controller	£35
Arc keyboard controller	£29
A3000 Power Supply Unit	£59
A300/A400 Power Supply Unit	£89
Fan Filter	£4

BBC/Master Spares

BBC Keyboard	£46
Master 128 Keyboard	£62
BBC B Power Supply unit	£59
Master 128 Power Supply unit	£69
Keyswitches	£1.50
UHF Modulator	£4
Master 128 Battery Pack	£5

Cables

Monitor Cables

BBC to Philips 8833 (6pin - 8pin)	£3.50
BBC to Microvitec (6pin - 6pin)	£3.50
BBC to SCART lead	£7.50
BBC to Phono lead	£2.50
BBC to UHF TV lead	£2.50
Arc to Philips 8833 Mk2 (9pin - 9pin)	£7.50
Arc to SCART Stereo lead	£9.50
A3010 to Philips Mk2 (15pin - 9pin)	£7.50
A3010 to SCART Stereo lead	£9.50
Arc to VGA Monitor adaptor	£12.00
15pin VGA to 15pin VGA lead	£12.00
15pin VGA Extension lead	£

Printer Cables

BBC Parallel Printer cable - 4ft	£5.00
BBC Parallel Printer cable - 6ft	£6.00
PC/Archi Parallel Printer cable - 2m	£5.00
PC/Archi Parallel Printer cable - 5m	£9.00
PC/Archi Parallel Printer cable - 10m	£13.00
25 'D' male to 25 'D' male cable - 2m	£5.00
25 'D' male to 25 'D' male cable - 5m	£10.00
Centronics Double Ended cable - 4ft	£5.00
Centronics Double Ended cable - 6ft	£6.00
Centronics Double Ended cable - 5m	£10.00

Disc Drive Cables

Single BBC Disc Drive Data lead	£4.00
Dual BBC Disc Drive Data lead	£6.00
Single BBC Disc Drive PSU lead	£3.00
Dual BBC Disc Drive PSU lead	£4.00
Data Duck - connect 2 drives	£14.00
Power Duck - connect 2 drives	£8.00

BeeB PC

Allows PC compatible computers to convert BBC BASIC programs to PC BASIC.

£38

BeeB DOS

Allows PC compatible computers to read BBC and Archimedes format discs.

£39

Disc Storage Units

M35 - Holds 50 5.25" discs	£4.95
M85 - Holds 100 5.25" discs	£6.95
M25 - Holds 25 3.5" discs	£4.95
M40 - Holds 40 3.5" discs	£6.50
M80 - Holds 80 3.5" discs	£6.99
DLC1 - Holds 5 x 3.5" discs	£1.50
DLC2 - Holds 10 x 3.5" discs	£1.90
DLC3 - Holds 5 x 5.25" discs	£1.60
DLC4 - Holds 10 x 5.25" discs	£2.00

3M Branded Discs

10 x 5.25" S/S D/D 40T (744)	£5
10 x 5.25" D/S D/D 40T (745)	£5
10 x 5.25" S/S D/D 80T (746)	£6
10 x 5.25" D/S D/D 80T (747)	£6
10 x 5.25" D/S H/D 1.6Mb	£8
10 x 3.5" D/S D/D	£6
10 x 3.5" D/S D/D Formatted	£7
10 x 3.5" D/S H/D	£10
10 x 3.5" D/S H/D Formatted	£11

Bargain Corner

We have a limited number of new and refurbished items for sale at bargain prices. As this is a special offer the items have a 30 day warranty only.

12" Monochrome Monitors	£49
14" RGB Colour Monitors	£109
Various Dot-matrix Printers	from £69
40T Single BBC Disc Drives	£49
Master 512 co-processor package	£49
Master 65C102 co-processor	£39
Universal 2nd processor for BBC	£25

Please ring or call in for availability of items.

Disc Albums

DW1 - Holds 6 x 3.5" discs	£2.50
DW2 - Holds 6 x 5.25" discs	£3.00
DW3 - Holds 20 x 5.25" discs	£3.50
DW4 - Holds 40 x 3.5"/5.25" discs	£4.50

Disc Filing Systems

Watford DDFS MKII Kit	£39
Acorn 1772 DFS Kit	£49
Watford DFS Kit	£45
Acorn DNFS ROM	£17
Acorn ADFS ROM	£25
Disc Filling System Manual	£6.95

- **All prices are exclusive of VAT.**
- **Official orders welcome from Schools, colleges etc.**
- **Mail order enquiries Mon-Fri only.**

Carriage Charges:

	1st Item	2nd Item
Software	£6.00	£2.00
Hardware	£7.00	£5.00
Laser Printers	£9.00	£7.00
Accessories	£5.00	£2.00
Small Items	£4.00	£2.00

Many software items qualify for small item tariff.

For **Next Working Day** service simply double the cost.

Terms and Conditions:
Offers and all items are subject to availability. Prices may have to change for reasons beyond our control. Specifications and prices are correct at time of going to press, but may change without notice. Please check suitability of peripherals before ordering. All trademarks are duly acknowledged. Goods are sold as per our standard terms and conditions, and are available on request. Goods are not sold on trial basis. E&OE.

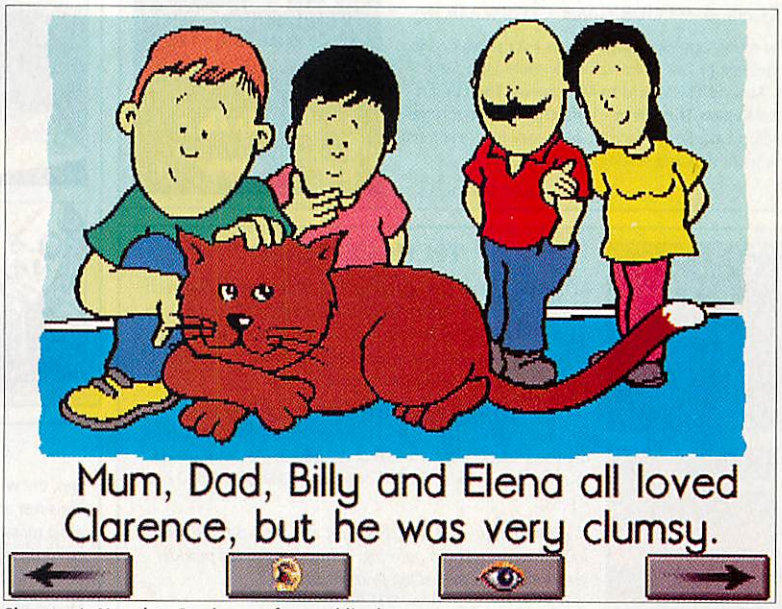
Watford Electronics Ltd



Mail Order & Showroom:
Jessa House, Finway, Dallow Road, LUTON, LU1 1TR.
Tel: 0582 487777. Fax: 0582 488588

Showroom only:
Jessa House, 250 Lower High Street, WATFORD, WD1 2AN.
Tel: 0923 237774. Fax: 0923 233642

Primary School Software



Sherston's Naughty Stories are fun and lively

AS a secondary school teacher, I don't get much chance to see software designed for younger children, so I was particularly pleased to receive an assortment of programs aimed at Key Stage 1 and 2.

When reviewing educational software, I think it's important to give the software to children to see how they get on with it, so I gave the programs to my children, Steven aged eight and Simon and Sally who are four-year old twins.

Taking the programs in order, starting with those for the youngest groups, these are my top three.

Noddy's Playtime

Supplier: The Jumping Bean Company
Tel: (0602) 792838
Price: £25.99 inc VAT

Supplied on three discs, this is not so much a program as a collection of activities. In addition to the discs, the colourful package contains an A3 size map of Toytown, a keyboard shortcut strip and a manual.

This program is available for a variety of computers. The activities are linked by a map which you 'drive' around, with the aid of the cursor keys, to locate the eight activities.

Only part of the map is visible on the screen; hence the A3 printed map to help plan the route from one activity to another. This unique menu system is, in itself, a valuable activity for young children and there is a great deal to be learned from these activities which are both varied and stimulating.

One of Simon's favourites was the market place where you have to spot the items beginning with a particular letter, but there is also a memory game, a counting puzzle and a jigsaw puzzle.

The box describes the program as being suitable for children aged three to seven, but I do wonder if seven year olds would find the program as fascinating as younger children.

Simon appeared to have it more or less under control after a couple of hours, and I would guess he will have outgrown it before his next birthday. But, if you've got a child aged between three and five, this is definitely worth buying.

Even if your child is older, and will outgrow the program after a relatively short time, the asking price makes it a very good buy.

Naughty Stories Volume 2

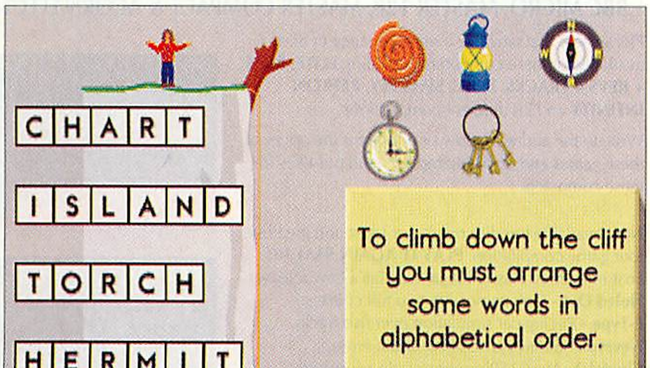
Supplier: Sherston Software
Tel: (0666) 840433
Price: £58.46 inc VAT

This pack contains six talking books, each comprising of a disc and a book. At the asking price of just under £10 per book it appears, at first sight, to be a little expensive.

The stories are just right for children's first attempts at reading either at reception stage, or for the brighter ones, just pre-school. They are fun, and the presentation is lively.

Sally, a natural book-lover, needed no persuasion to try this package. She enjoyed using the computer version first, and then looking through the books whose illustrations and text are identical. The computer picture can be animated, and the phrases can be read by the computer, either as a whole sentence or by clicking on individual words.

Although the recommended age range is five to seven, I feel that some experience of this program as a pre-school activity could prove beneficial. My only criticism is that although the digitised voice is clear and well-spoken, it's always a male voice.



Discovering dinosaurs can be a real brain-teaser

Dinosaur Discovery

Supplier: 4Mation
Tel: (0271) 22974
Price: £32.50 (single user), £64.50 (site licence)

Whenever 4Mation releases a program, you can be confident that it will be well thought out, well executed, excellent value for money, and will be accompanied by support material, all presented to a very high standard. The latest offering, an animated adventure in which you have to search for a hidden cache of eggs, is all of these things.

The animations by Hans Rijnen keep up the interest and the problems – mainly word-based – have been worked out with an appropriate level of difficulty.

As with most eight year olds, Steven is into dinosaurs and consequently didn't take much convincing to give this program a try. The adventure game is somewhat harder than *Granny's Garden* (reviewed in February) but without any help he got started, and was well under way by the time I sat down with him.

It's worth going through the documentation first and encouraging children to sit at the computer with a pencil and paper to take notes and jot down any calculations. Only by doing this will the child (and the parent) get the maximum from the software.

This program is aimed at Key Stage 2, which will be approximately eight to 11 years (top primary), although I envisage brighter children out-growing it well before they start secondary school. On the other hand, some less able youngsters could benefit from its use after leaving their primary school.

Geoff Preston

SUPERIOR SOFTWARE

ACORN A3000, A3010, A3020, A4000, A5000 & ARCHIMEDES

REPTON 3 – FOUR GAME COMPILATION



Four of the most popular strategy games ever produced for Acorn computers in one great value-for-money package. **Repton 3, Around The World In 40 Screens, The Life Of Repton** and **Repton Thru Time** – with choice of four tunes and a position Save/Recall facility, plus easy-to-use screen and character design and editing facilities.

£24.95 (inc VAT)

TECHNODREAM





At last, the action-packed sequel which everyone has been waiting for! Now, in addition to a 1 player option, you can choose to have 2 players simultaneously. Now, in addition to horizontal parallax scrolling, there is vertical scrolling to give a much enlarged playing area.

There are 18 increasingly fiendish stages, with brilliant arcade-quality graphics and massive animated sprites, plus digitised sound effects and 6 atmospheric pieces of stereo music. Control by keyboard or joysticks (Acorn A3010 or RTFM).

"Technodream's action gets so fast and furious the screen looks like an abstract painting. A highly polished product and well worth the asking price of £25."
...BBC Acorn User (May 93)

£24.95 (inc VAT)

PLAY IT AGAIN SAM 1





Four top quality, classic games...
...for the price of one!

Conqueror – The classic and highly realistic tank simulation game. Control up to 16 German, American or Russian tanks from World War 2. Arcade, Attrition or Strategy games.

Rotor – The widely praised strategy and action game. Manoeuvre the Rotor in 18 deadly missions into enemy fortresses. Destroy their defences as you steal ammunition.

No Excuses – Fifty levels of nerve-tingling excitement as you obliterate the grotesque aliens. Plus an easy-to-use designer to produce your own fiendish levels.

Hostages – Commando action and strategic planning as you rescue the hostages from the besieged Embassy. Realistic graphics and animation.

£24.95 (inc VAT)

THE LAST NINJA





You must use swords, nunchakus and shiraken stars and solve many devious puzzles in over 140 action-packed screens. From the dangerous wastelands and magnificent gardens, to the direst dungeons and the final confrontation in the Inner Sanctum of the Shogun's palace.
You cannot fail...you are The Last Ninja.

A graphically brilliant conversion, using the full screen and 256 colours, of one of the most popular and highly rated games ever produced for home computers.

"There's a great big nasty at the end of each level. The solution is never a matter of fighting, it always requires some astute thinking. The Last Ninja is a great game – go silently and leave no witnesses."
...Micro User (Aug. 92)

£24.95 (inc VAT)

SPEECH!



Give your computer a voice with this high quality speech synthesiser, which is both easy to use and very flexible. It can directly speak words you input or text files, or you can use phonetic input to add stress/intonation, speak foreign languages or even sing! An easily modified spelling program is included.

£24.95 (inc VAT)

PLAY IT AGAIN SAM 2





New four game compilation...
...great value-for-money!

Zarch – The classic, programming masterpiece. Pilot your hoverplane, equipped with laser cannon, smart bombs, and homing missiles, over a massive 3-D landscape.

Arcpinball – One of the most realistic and playable pinball simulations ever produced for home computers, with special high resolution graphics and 4 background scenes.

Repton 2 – This brilliant, award-winning mega-game, is now at last available for Acorn 32-bit computers. Have you the skill and cunning to join the elite few who have succeeded?

Master Break – The snooker-style trivia quiz game for 1 to 4 players. Over 2000 text and picture questions on Science & Nature, Sports, Arts, Pop Music, etc.

Available soon **£24.95** (inc VAT)

EGO: REPTON 4





Ego, the wisest of all the Repton family, now presents the cleverest and most puzzling of all the Repton games. There are a massive thirty levels of play. In each level you have to build up a jigsaw puzzle of a famous personality or place by collecting the pieces scattered around.

However, it's not quite that easy! You have to carefully manoeuvre your way around using various Conveyers and Transporters, and a lot of cunning strategy. You collect the Gems as you move around, whilst dodging the deadly Androids, but what do you do with the Towers, Trees, Grass, Mushrooms and Holes?

"Repton 4 is challenging, good value for money and well graded. What more can I say?"
...Acorn Computing (Jan. 93)

£24.95 (inc VAT)

AIR SUPREMACY





In this unique game, you can swap between air and ground/sea forces as the battle develops. Practise with the biplanes and tanks of 1918 Europe, the fighters and gunboats of the Pacific 1944, and the guided missile jets and desert tanks of the Gulf 1991. Then to 2150 and the final challenge!

"The sense of speed when flying around is excellent. Skimming along the ground in a stealth fighter is particularly fun."
...BBC Acorn User (Dec. 91)

"The ultimate dogfighting game - will take weeks of intensive play to complete - sinks its hooks into you and doesn't let go."
...Archimedes World (Dec. 91)

£24.95 (inc VAT)

BBC MICRO, MASTER 128, MASTER COMPACT & ACORN ELECTRON





Please note that we have a massive range of titles available for these computers, including **ELITE, REVS + REVS 4 TRACKS, EXILE, SIM CITY, REPTON INFINITY** and 20 different compilations.

Write to the address below or phone for the prices of these games and an illustrated list of all our titles for these computers.

Now available (on disc only), our latest and greatest four game compilation, **PLAY IT AGAIN SAM 18.** Featuring three classic hit games plus a new release:
Holed Out - Golf game with two full courses.
E-Type - Racing car simulation over five tracks.
Nevryon - Sideways scrolling shoot-em-up.
Citadel 2 - New 150 screen arcade adventure.

BBC Micro/Master 5¼" disc...£19.95 (inc VAT)
Master Compact 3½" disc ......£24.95 (inc VAT)

SUPERIOR SOFTWARE

(Superior Software is a trading name of Superior Microcomputing Ltd.)

Dept. V2, P.O. Box 6, Brigg, South Humberside DN20 9NH. Tel: (0652) 658585

PLEASE MAKE CHEQUES PAYABLE TO "SUPERIOR SOFTWARE."

24 HOUR TELEPHONE ANSWERING SERVICE FOR ORDERS

OUR GUARANTEE

- All mail orders are despatched by first-class post
- Postage and packing is free
- Discs that are faulty on receipt will be replaced immediately

(This does not affect your statutory rights)

ABOVE ALL. . . WE OFFER A SERVICE BACKED BY 11 YEARS EXPERIENCE!!

Just look at these Special Offers

HARD DISK UPGRADE OFFER
Complete SCSI Internal Hard Disk Upgrade To 170Mb With 16 Bit Interface And CD Rom Support
Other Systems Available
Call for Details
Only £299 +VAT

PRES MONITOR STAND
Suitable for A3000 & A3010/A3020
£24.95 +VAT

PRES PODULE CASE
Allows Podules to be attached to A3000
£14.95 +VAT

PRES SYSTEM HOUSING
Fits on top of Monitor Stand. Provides fitting and power for additional Drives, Hard Drives and CD Roms
Only £69.50 (Stand & Housing £79.95)

"I can strongly recommend P.R.E.S. Ltd for their efficient, personal, honest and considerate service. Not just on one occasion, but on all the occasions I have deal with them"

A4000 Learning Curve
Plus Multiscan Monitor
£899 +VAT

Acorn Computers Action Pack
Upgraded to 2 Meg (Includes Free Mouse Mat)
£339 +VAT

Please call for further advice on any products. Prices exclude VAT but include UK delivery. Subject to availability. E&OE.

ENTERPRISE Business Software

The NEW range of ENTERPRISE Accounts Software

Enterprise Professional
This is the top of the range professional double entry accounts system.

A fully modular multitasking system which can be tailor made to suit your business. From customised invoice layouts and reports – through to Profit & Loss Account and Balance Sheet. Modules, such as Payroll, can be added at any time.

The Enterprise Professional business system comprising Sales, Purchase, and Nominal Ledgers, Stock Control, Mailing and Database Module. £279

Enterprise Accounts
The only truly professional, multitasking accounts software for Acorn Computers. All the facilities for the day to day management of your business, invoicing, purchasing, bank, petty cash, reports (programmable) audit trail, trial balance Profit and Loss and Balance Sheet.

If your business needs change, simply upgrade to Enterprise Professional for the difference in price or adding the required modules (for example Paymaster £99).

Enterprise Accounts £199

EasyMoney
The easiest way yet to take control of your accounts. Ideal for first time users and people new to accounts software. The perfect tool for any cash based business. Quick and easy entry of income and expenses. Instant reports on bank, cash and credit card accounts. The comprehensive manual is 'jargon' free, Easy Money can be easily upgraded to the Enterprise Accounts.

Easy Money £99

NEW PAYmaster
Paymaster covers all pay periods, F/T and P/T staff, salaried or by timesheet, user defined payslips can be checked and printed. Stand alone program or integrated in Enterprise Professional. Please call for details £99

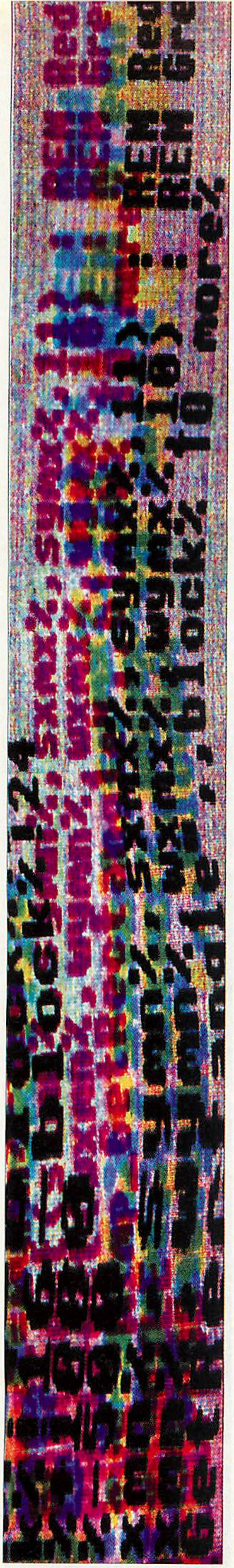
PlanING — The Plan Designer
Already Recommended to Secondary Schools to fulfil National Curriculum requirements

ProjectING — The Project Manager
A fully featured Project Management system developed in association with Acorn Computers to provide a truly professional solution to planning. Facilities include Critical Path Analysis. Call for further details.

PRES

P.R.E.S. Ltd, PO Box 319, Lightwater, Surrey, GU18 5PW
Fax: 0276 451427. Tel: 0276 472046

Access VISA



Back to Basics

In part eight of his series on Basic programming, Mark Moxon takes a look at functions, and the ins and outs of local variables

Procedures and functions are very similar, so perhaps a really quick recap of what they are would be a good idea, just to save you fishing out last month's copy. A procedure is simply a block of code which we start with a line like:

```
DEF PROCmove
```

and end with the line:

```
ENDPROC
```

This block of code can be executed (or called) by including the statement:

```
PROCmove
```

in our program. Simple really, but very powerful.

Functions are a similar breed in the sense that they are blocks of code which can be executed, but they take a different form and have a different purpose. Functions calculate and return values, and are used as parts of expressions which need to be evaluated, rather than stand-alone statements. Here's a simple example.

Don't worry about how we actually define a function for a second; just assume that we have defined a function called FNsquare(n), which takes a number and returns the value of that number squared – in other words, multiplied by itself. Function names always start with FN, in the same way that procedures always start with PROC, and the way we can call functions is like this:

```
num=FNsquare(3)
```

Assuming we have written our code for FNsquare(n) properly, this will assign the variable num to have the value of 3 squared, or 9. Because a function call acts like any other expression and can be evaluated, we can include them in more complicated expressions like:

```
num=(FNsquare(a)-
FNsquare(b))/c
```

which would set num to be a-b divided by c.

Defining function

Function definitions take the same sort of form as procedure definitions: they are blocks of code which are executed only when called. We start a function definition with a line like:

```
DEF FNsquare(n)
```

in a similar way to DEF PROC for procedures.

However the last line of a function definition takes a rather strange form: the line starts with an equals sign, which is then followed by the value to be returned as the value of the function. Thus our FNsquare definition would be:

```
DEF FNsquare(n)
=n*n
```

This simply means that when the function is called, the variable n is set to the value in the brackets; for example, n is set to 3 if the function is called by FNsquare(3). The value returned is then that of n multiplied by itself, which is the square of the argument supplied to the function.

A quick example might help to clarify matters. Have a look at Listing 1, which shows how functions can be used together. Quite often in Wimp programming you need to take a full filename, such as 'adfs::Mark.$.tmp.TextFile', and split it into the filename ('TextFile') and the pathname ('adfs::Mark.$.tmp'). Listing 1 does just that: run it and type in a typical full filename, and the split will be printed. The two different parts of the string you enter are calculated by the functions FNfilename and FNpathname. Let's take a look at FNfilename first, the function which pulls off the last word in the string.

The idea is that the REPEAT-UNTIL loop steps through each occurrence of a full stop in the string, and then the last line (the part which returns the value of the function) simply takes the part of the string from the last full stop onwards, and returns this as the result of the function.

The code works like this: set temp% to point to the start of the string, and pos% to the character after this. Now look for a full stop in the string: if one exists then the INSTR function will return the position of this full stop, so set temp% to that position, set pos% to one after this position, and go back, searching the string from position pos% onwards.

Keep doing this until we don't find a full stop (when INSTR returns 0), and then temp% will point to the position of the last full stop, so taking the string from position pos% onwards will give us the filename.

We could use a similar method to find the pathname, but a quicker method is to use the filename function already defined. If we consider the whole string and we know the filename, then to get the pathname all we have to do is chop off the right number of characters from the end of the string.

So FNpathname works like this: set filelen% to the length of the filename part of the string, and then use this to calculate the length of the pathname.

The calculation is simple, and is just the length of the whole string, minus the length of the filename (filelen%), minus 1 to account for the full stop between the filename and the pathname. The final line of the function definition returns the first pathlen% characters from the left of the string: in other words the pathname.

Local variables

One of the benefits of procedure and function definitions is the ability to copy them from program to program and know that they will still work properly. For example, the functions described above can be used in all sorts of programs, and as they are self contained you don't have to change them to work with different programs.

However, there can be occasions where using the same procedures in different programs can cause problems. Take FNfilename for example: it defines two variables, temp% and pos%, while calculating the filename from the string file$.

This doesn't cause any problems in Listing 1, but imagine a different program which calls this function, and already has a variable defined called pos% which is used elsewhere in the program.

If FNfilename is called in this program, then the value of pos% is changed by the function, overwriting the previous value and potentially causing havoc. One way round this is to make sure that different names are used for the two variables, but a better solution is to make pos% 'local' to FNfilename.

When a variable is made local to a procedure or function, then assigning values to that variable won't affect any variable of that name in the rest of the program.

Essentially, what happens is that when the procedure is called the computer remembers the value of pos% (and any other variables which are made local), and when the procedure terminates (via ENDPROC, or in the case of functions via the equals sign) the value of the variable is restored. In this way we can write routines which will work in any program in exactly the same way.

The command to make a variable local has the following form:

```
LOCAL pos%,temp%
```

where the variables listed (separated by commas) are all made local, so changing their values in the procedure won't affect variables with the same name which are already defined. This line is normally put straight after the line defining the routine (the DEF line).

Listing 2 contains an example of the effect of using LOCAL. It contains two identical procedures, the only difference between them being the inclusion of a statement which makes the variable var% local to PROClocal.

If you run the program, you will see that var% is set up to be 5 in the main body of the program, and each of the procedures changes that value to 10. As you can see from the results of running the program, if var% is 5 and PROClocal is called, then var% changes to 10 inside the procedure, but when the program returns from PROClocal, the original value of 10 is restored. However, if var% is 5 and PROCno_local is called, then var% changes to 10 inside the procedure as before, but retains its value of 10 when the procedure returns.

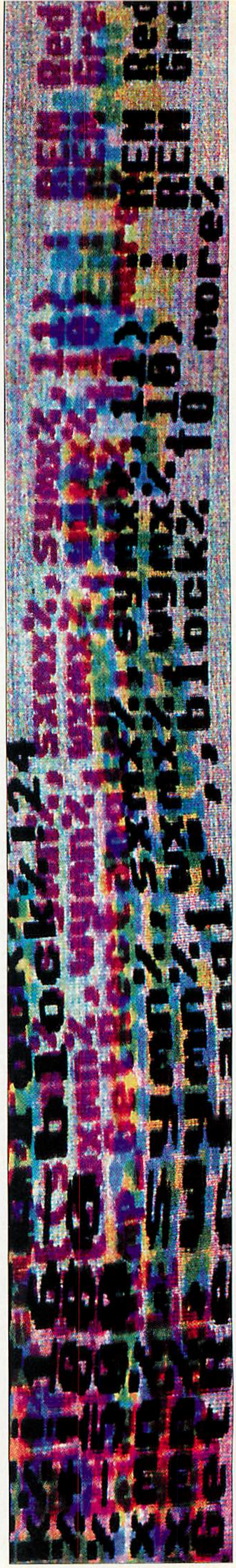
It's a good habit to make variables local if they are only to be used inside that procedure or function: then you know you won't have variable clash. Another interesting effect of procedures is that variables passed as arguments are always local. To find out how you can change this, tune in next month as we finish off procedures and functions.

Listing 1

```
REM >Listing1
:
ON ERROR REPORT:PRINT " at line ";ERL/10:END
MODE 0
INPUT "Please enter a full filename",f$
PRINT "Filename = ";FNfilename(f$)
PRINT "Pathname = ";FNpathname(f$)
END
:
DEF FNfilename(file$)
temp%=0
REPEAT
 pos%=temp%+1
 temp%=INSTR(file$,".",pos%)
UNTIL temp%=0
=MID$(file$,pos%)
:
DEF FNpathname(file$)
filelen%=LEN(FNfilename(file$))
pathlen%=LEN(file$)-filelen%-1
=LEFT$(file$,pathlen%)
```

Listing 2

```
REM >Listing2
:
ON ERROR REPORT:PRINT " at line ";ERL/10:END
MODE 0
var%=5
PRINT "At start of program, var% = ";var%
PROClocal
PRINT "After PROClocal, var% = ";var%
PROCno_local
PRINT "After PROCno_local, var% = ";var%
END
:
DEF PROClocal
LOCAL var%
var%=10
PRINT "Inside PROClocal, var% = ";var%
ENDPROC
:
DEF PROCno_local
var%=10
PRINT "Inside PROCno_local, var% = ";var%
ENDPROC
```



ARM3 upgrades

All 25MHz ARM3 upgrades increase the speed of your computer by a factor of 3 (typically), and sometimes even more. Acorn's floating point chip, the FPA10, speeds up maths operations previously emulated by software.

IFEL can offer three versions of the ARM3 board;

1) A 25MHz ARM3 with FPA option. This upgrade has a 68-pin socket on the ARM3 board, and the FPA chip can simply be plugged in at any time. **£109.**

2) Standard 25MHz ARM3 without the FPA option. Provides the same increase in speed as (1) above, but does not allow the FPA chip to be added later. **£99.**

3) 35MHz ARM3. We still have limited stocks of these ultra-fast ARM3 upgrades. Some of the most popular Archimedes applications (such as Impression, Artworks and even BASIC V) do not gain anything from the FPA10. So, for those using Impression or Artworks extensively, the 35MHz upgrade is the only logical choice. The last remaining units are just **£114.**

All our ARM3 upgrades use a high quality 4-layer circuit board. 25MHz devices may be fitted to the A305, A310, A440, 400/1 series and the A3000. (The 35MHz part is not suitable for the A3000). Installation is straightforward for the 300 and 400 series computers. A 3-day fitting service is available if required. Please note that the A300 series and old A440 require the MEMC1a upgrade (£25).

These prices apply strictly while stocks last. Our usual money-back guarantee applies to all ARM3 upgrades.

RISC OS 3 £75

Acorn's new operating system for their range of RISC computers. The upgrade consists of four replacement ROMs, utility discs, and manuals.

RISC OS 3 may be used on the A305, A310, A440, 400/1 series, A3000, 540 and A5000.

RISC OS 3 **£75**

A305, A310 and A440 owners please note. You will need to install the RISC OS Carrier Board in order to use RISC OS 3. The RCB may be used with any version of RISC OS. This carrier board is compatible with memory boards, ARM3 upgrades and does not in any way obstruct expansion cards ("podules"). Unlike some other adaptors, the IFEL RCB allows ROMs up to 8Mbit to be used. (RISC OS 3 chips are currently only 4MBit.)

RISC OS Carrier Board **£21**

A3010/A3020/A4000 RAM

These machines may all be upgraded by easy to fit, plug-in components. No soldering is required.

A3020/A4000 extra 2Mb - **£Please phone**
A3010 extra 1Mb (2Mb total) - **£35**
A3010 upgrade to 4Mb - **£125**

All products fully guaranteed. Many products also carry our 14-day money-back guarantee too. Please phone for details.

This month's specials

25MHz ARM3 with FPA option	£109
25MHz ARM3 with FPA fitted	£199
25MHz ARM3, no FPA option	£99
35MHz ARM3	£114
Wordworks (CC)	£31
Artworks	£120

A3000 memory - 4Mb £109

An easy to fit and reliable RAM upgrade. **Gold plated** connectors ensure long term reliability. This upgrade uses a four-layer circuit board as recommended by Acorn. No soldering needed.

2Mb RAM board (upgradable to 4Mb) - **£56**
(This board has high quality turned pin sockets to take an extra 2Mb of RAM (ie 4Mb total). When comparing the prices of other 2Mb boards, check the cost of upgrading to 4Mb later. Some boards cannot even be upgraded at all.)
2Mb to 4Mb upgrade for above 2Mb board - **£63**
4Mb RAM board complete - **£109**

Trade-in offer. When purchasing the 4Mb board, we will give an allowance for *any* A3000 2Mb memory card. Please phone for details.

A5000 systems & memory

A5000 with RISC OS 3, 80Mb hard disc, multisync monitor and ARM3. - **£1219.**
Free 4Mb RAM upgrade included in the price.
A5000, 4Mb and 160Mb hard disc - **£1435**

2Mb memory board (4Mb total) - **£75**
A compact board measuring just 104mm by 37mm, this design fits vertically in your machine. No soldering required. Unlike larger boards, there is no need to remove the disc drive. Four-layer design as specified by Acorn.

Hard disc upgrades

A range of fast SCSI or IDE internal hard discs with a year's warranty, in sizes from 40Mb upwards. Complete systems supplied with all metalwork and cables. 400/1 machines merely require the drive and controller card. 300 series require a backplane.

85Mb SCSI - **£210**
120Mb SCSI - **£199** 210Mb SCSI - **£250**
Fast 16 bit SCSI card - **£100**
170Mb IDE - **£275** 200Mb IDE - **£300**
IDE controller card - **£75**
(add £75 for external version of SCSI discs)

Various

Aleph One 486 1Mb PC Card - **£490 (4Mb £580)**

Free price list available upon request.
Prices exclude VAT.

A300 series upgrade column. 2Mb £89, 4Mb £119

Memory expansion

Extra memory is without doubt the most worthwhile addition to any A300 series machine. Some programs won't even run with only 1Mb, and 2Mb is a bare minimum. Certain applications, desktop publishing for example, benefit from a 4Mb system.

1Mb to 2Mb - £89 **1Mb to 4Mb - £119**

Upgrade from 2Mb to 4Mb (self fit) **£63**

Compatibility. The memory is detected and used by the machine automatically, so there are no special commands needed. Works with both RISC OS 2 and RISC OS 3.

Fully compatible with ARM3 upgrades, backplanes, hard discs etc. This upgrade is supplied on just one, compact board measuring only 195mm by 46mm. Four-layer circuitry reduces electrical noise for trouble-free operation. The 2Mb upgrade may be upgraded to 4Mb later by the user, without any soldering, at a cost of £63. A copy of the fitting instructions is available free of charge.

Is there any other 300 series RAM upgrade wich has been available for as long as this one, and which has the same reputation for quality and reliability? No.

Still not sure? Compare it with the competition before making up your mind. Use our 14-day money-back guarantee to check it out for yourself.

4-slot backplane with fan **£52**
(This is a four-layer circuit board)

Combination deals

4Mb with MEMC1a, self-fit **£143**
Collection of your computer, installation of 4Mb of RAM, MEMC1a, and RISC OS Carrier Board, testing, full guarantee, and return delivery **£189**
As above, but with 2Mb of RAM **£135**
(Add £70 to have RISC OS 3 fitted at the same time.)

Fitting service

Many upgrades are straightforward to fit (eg A3000 and A5000 memory), but others require expertise. We can provide a fitting service for all of our products, usually with a three day turn round. Please ask for a quotation.

A3000. Fitting ARM3 upgrade - **£25.**

Special deals including fitting

A3000 upgraded to 25MHz ARM3 and 4Mb of RAM. Includes carriage. **£225.**
(While ARM3 stocks last).
A310 upgraded to 4Mb RAM, MEMC1a and RISC OS Carrier Board. Includes carriage. **£189.**

RAM for 410 & 420

Upgrade from 1Mb to 2Mb - **£35**
Upgrade from 2Mb to 4Mb - **£70**
Upgrade from 1Mb to 4Mb - **£105**
Supplied with full instructions.

Educational and quantity discount available.

IFEL Ltd
34 Culver Road, Saltash, Cornwall PL12 4DR. Tel (0752) 847286. *Fax (0752) 840029*

VISA

QUESTIONS & ANSWERS

Flashing disc drive lights, sluggish start–ups and expanding your A3010...

Q I have recently bought an A3010 and have a query about the disc drive. When I copy or move files from one disc to another by dragging them between directory windows, the computer reads the files and brings up a message telling me to put in the other disc.

My problem is this. The drive light remains on until I remove the disc, and then it flashes on and off until I put the correct disc in the drive; then the OK button turns black and the computer writes the files.

The Welcome Guide clearly warns you not to remove a disc when the light is on, but I have to do so for the above procedure. Is this case an exception, or is there a fault with my computer?

J Rawle
Kidderminster

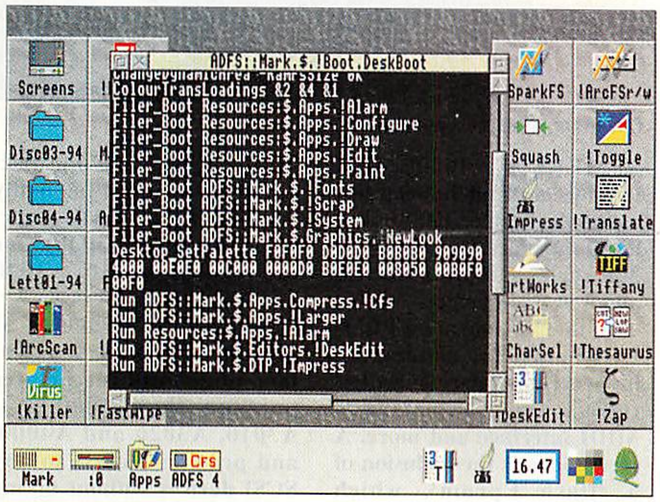
A **Don't worry: there's nothing wrong with your computer. The flashing disc drive light is in fact a 'bonus' feature of your machine which not all Acorn models have.**

The first 32-bit machines, the A305, A310 and A440, all had disc drives which could sense when a disc was changed. This meant that when the computer asked for a disc to be put in the drive, it could tell when this was done, so the user didn't have to bother to click on OK, as it was automatic.

This 'feature' was removed in the A400/1 series, and if you look inside one of these computers, you will notice that the disc drive ribbon cable actually has a couple of its wires cut out: these wires normally carry the signal sent out by the drive when the disc was changed.

In the latest Acorn models – those with high density drives – this ability to detect the disc has returned, so all that is happening when your disc drive light is flashing is that the computer is sitting there trying to detect the insertion of a new disc, and when the correct disc is inserted, it 'presses' the OK button for you.

Although it is true that you shouldn't insert or remove a disc when the light is on, this is an exception and you won't have any problems.



Judicious use of sticky backdrops and a cut down boot file

Q I use an A440/1 with Risc OS 3 which is configured, on start-up, to load various modules and utilities. The list of tasks includes running *System*, *Fonts*, *MoreFonts* and *Scrap*, loading the printer manager for an LPB4 and a BJC-600, configuring the cache for my Arm3 to be on, setting up a Colour Card, and loading *Spark*, *Menon*, *FlipTop* and an iconbar clock.

My problem is that I now find this start-up sequence takes almost two minutes. Can you suggest a way of speeding up my boot sequence?

M H Brooke
Berlin

A **The quick and easy answer to your question is simple: no. It is not possible to speed up your boot sequence if you want to load all these applications on start-up.**

The problem is two-fold. First, if you are still using the original hard disc in your A440/1, then it is very slow compared to modern IDE and SCSI devices.

I find the ST506 drive in my trusty old A420/1 exceptionally slow compared to the external SCSI disc on the same machine; in my case I've simply moved all the important applications onto the SCSI and only use my ST506 as a backup disc.

The second problem is that some of your start-up applications may take a particularly long time to run. If you have a lot of fonts in your font directories, then running these takes time. Weed out any fonts you don't use, or alternat-ively put your less-used fonts in the second font directory, and only run this from *Menon* as and when you need those fonts.

The printer manager is notoriously slow at loading up, but unfortunately there is no easy way to speed up the Risc OS 3 man-ager, unlike the Risc OS 2 version. *SparkFS* also takes time if you have opted to load a lot of compression modules, so cut down the number of compression modules ticked in the options window.

The rule is to minimise your boot sequence, and make use of *Menon* or *Pinboard* more often. You can't speed up your boot sequence, but you can cut it down.

Consider whether you really need to load *SparkFS* every time you use your machine. Do you always need the printer manager loaded? You will probably find it more time-efficient to load applications only when you need them, rather than waiting ages every time you reset your machine.

Q I am confused at the large number of ways it seems possible to expand my A3010. If I expand my machine with an internal hard disc, where does that leave my expansion capabilities, as my one precious expansion socket has now been taken up? What if I want to add a digitiser later? Is it possible?

I would encourage you to publish a guide to what is possible: I suspect many people would find it useful.

R Brewer
Lambourn

A **There are a number of options, available from various companies, so an explanation is probably best presented by going through what each company offers.**

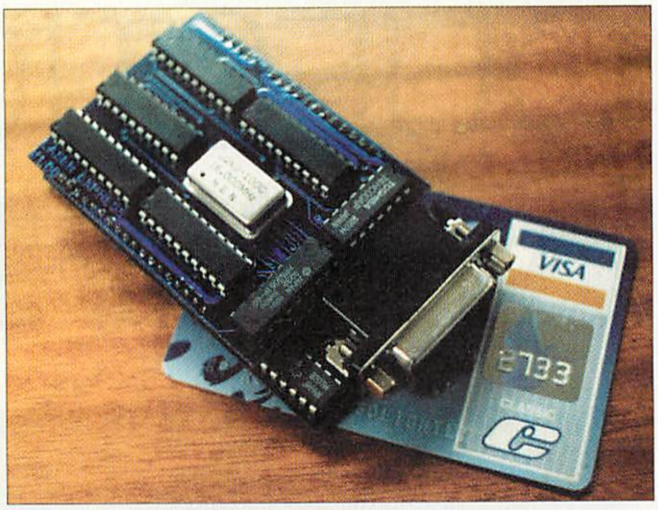
HCCS – Ultimate Expansion System. Expansion

cards are supplied as 'micropodules', each being about the size of a very thick credit card. These plug into the 'multipodule', a normal expansion card which plugs into any Acorn (bar the A4) in the normal way. You can also have a hard drive fitted to the card as standard.

On an A3000 series machine, or an A4000, you can therefore have up to three micropodules fitted, or two if you have opted for a hard drive as well.

On large-box models like the A5000, you can fit two micropodules to each multipodule, giving a maximum of eight micropodules in one machine. Micropodules available include digitisers, SCSI (with CDFS), analogue port, serial, MIDI, CD-Roms, sound samples and Computer Concepts' Scan Light Scanners.

Cumana – The EMU interface. This interface is similar in concept to the Ultimate Expansion System, but is especially suitable for education. It was developed for SEMERC's A4000S, and various add-on boards are available, such as IDE drives, a CD interface for Cumana's 300 series CD-Rom drives, and a SCSI interface.



One of the HCCS micropodules

In the pipeline are a PCMCIA board for connecting low-cost peripherals, a digitiser/scanner interface, a MIDI interface and more. A clever idea is the inclusion of a 'flash Eprom', which enables the board's software to be upgraded from disc, removing the need for fiddly Rom upgrades. EMU interfaces are only available for the A3000, A3010, A3020 and A4000 computers.

Atomwide – Parallel SCSI interface. This SCSI interface plugs into the printer port on the A5000, A4, A3010, A3020 and A4000, and provides access to any SCSI devices without taking up any expansion slots. If you have already filled your expansion slot and want to add a hard drive, this is worth considering.

Pineapple – MEA/2 board. This fits to A3010, A3020 and A4000 computers to provide a 64-pin expansion socket like on the A3000. This theoretically allows you to add external hard drives which are suitable for the A3000, and also external expansion boxes like those available from Wild Vision and PRES.

Telephone numbers for the above companies are: HCCS, 091-487 0760; Cumana, (0483) 503121; Atomwide, (0689) 838852; Pineapple, 081-599 1476; Wild Vision, 091-519 1455; PRES, (0276) 472046.

If you've got a problem, drop us a line at Questions and Answers, Acorn User, Europress Enterprise Ltd, Europa House, Adlington Park, Macclesfield SK10 4NP, and we'll do our best to answer.

Customer hotline

Quest for Gold

A quick reminder: the disc must not be write-protected when the game is loaded.

NewLook

If you want to have your new window borders, backdrop and so on loaded as the computer starts up, here are the commands to put into a *!Boot* file.

For new window borders:

```
toolsprites <full filename>
```

For a new backdrop:

```
backdrop -<option> <full filename>
```

The option letter may be S for Scaled, C for Centred or T for Tiled.

Organising your desktop

Quite often a computer is used for certain tasks which require a specific set of applications. However it is wasteful of effort to simply load each application every time by double-clicking on it.

An easier way is to create a script file which does it all for you. Here's how:

Load *Edit*. Bring up the Create submenu. Move down to the writable area at the bottom of the submenu, type in Desktop and press RETURN.

Now open a directory viewer showing the application you want the file to start up. Hold down the SHIFT key and drag the application from the directory viewer into the *Edit* window. You should see the full path for the application appear. Repeat this for each application you want to run.

Finally put a / at the start of each line. This can be done quickly by selecting the whole text, pressing CTRL-F4 and typing a / as the character to indent with. The completed file should look something like:

```
/Resources:$.Apps.!Alarm
/Resources:$.Apps.!Edit
/Resources:$.Apps.!Draw
/SCSI::aglover.$.!boot.startapps.!printers
```

Now save the file from *Edit*. It should not be called *!Boot*, since it might get confused with your start-up sequence files. The name should be something meaningful, like *Accounts*, *Letters* or something similar.

Taking this a stage further, you could have this file on the backdrop so that it is always available or even have it put there when the computer starts up.

You can, of course, create as many different files like this as you wish for different uses of the computer.

If you end with some applications which are only ever loaded from files like this you can now make your desktop run faster. Whenever you open a directory viewer for the first time the Filer must read in and store all the sprites it finds for each application. The more applications there are the slower it gets. The technique therefore is to move applications which you are unlikely to start by double-clicking them into a directory further down the structure which you are unlikely to open manually. Note that you might need to update the Desktop file with the new locations of the applications.

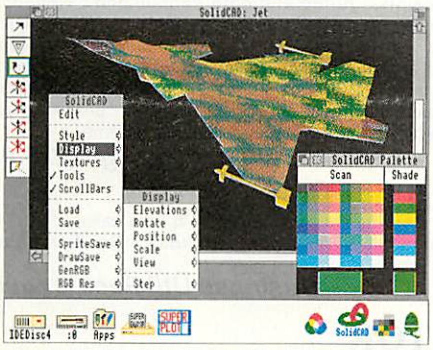
You may come across some applications which will not work unless their *!Boot* file has been executed (which usually happens automatically when a directory viewer is first opened). When this occurs the solution is simply to copy the line (click three times on the line and then type CTRL-C), put the caret at the end of the first copy of the line and type '.!Boot'. The pair of lines should now look like:

```
/SCSI::aglover.$.!boot.startapps.!badapp.!boot
/SCSI::aglover.$.!boot.startapps.!badapp
```

SILICON VISION®

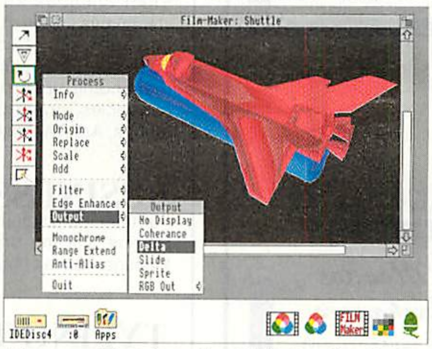
DESKTOP SOLUTIONS FOR ACORN COMPUTERS

SolidCAD® Release 5.1



The most comprehensive 3D CAD package for RISC OS. Powerful 3D CAD facilities allow drawing in Plan, Side, and Front Elevations, Texture Mapping, Printing & Plotting, Drawfile import/export & high-speed realtime animation.
"very easy to use and extremely well documented if you get stuck" - Acorn Computing. ***£99.95***

FilmMAKER® Release 5.1



The complete Interactive 3D Animation System for users who wish to explore their creative talents without resorting to programming. Fully compatible with SolidCAD® & SolidsRENDER®.
"Animation Oscars are up for grabs" - Archimedes World. "Specifying the movements of objects is a dream" - BBC Acorn User. ***£79.95***

SolidsRENDER® Release 5.1



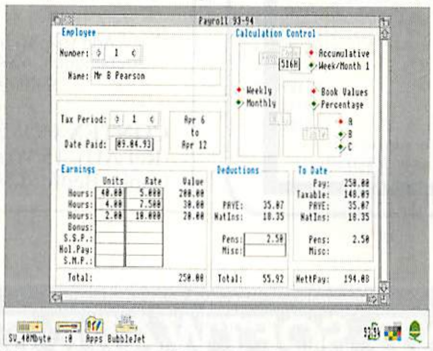
The most advanced Ray Tracing package for RISC OS. Use standalone or import SolidCAD® designs & FilmMAKER® flightpaths for Object orientated design and Animation capabilities producing images in a fraction of the time.
"the fastest ray-tracer ... outputting the highest quality images" - Archimedes World. ***£99.95***

SolidTOOLS® Release 5.1



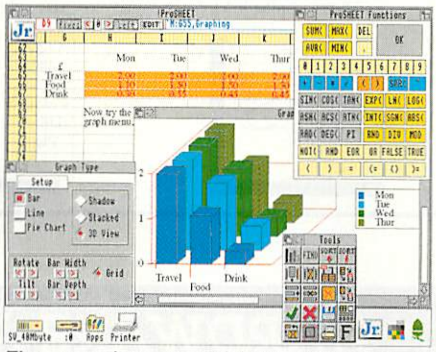
The first fully integrated environment providing 3D CAD facilities for Architectural, Engineering, Interior design and Teaching CDT. The package includes SolidCAD®, FilmMAKER®, and SolidsRENDER® offering a turnkey solution satisfying all your conceptual design, & presentation requirements.
"Puts Silicon Vision at the Top of the CAD market" - Archimedes World. ***£275***

Payroll Manager™ v2.0



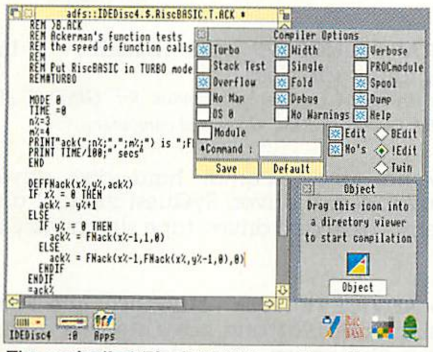
The complete RISC OS Compliant Payroll Manager handling the latest budget changes. Features include Weekly/Monthly salaries, cumulative or week1/month1 Tax basis, Book or Percentage values and selection of Tables A to E. Reports include Wage slips, Deductions Working Sheets, Cash Breakdown and Total Employer Expenses, plus End of Year P14/P60.
"Comprehensive and User friendly" ***£99.95***

ProSHEET™ Release 1.1



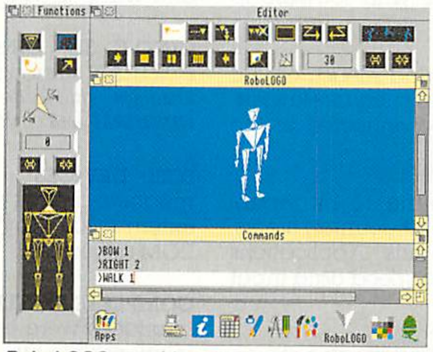
The complete spreadsheet developed for education, home user and business providing most of the facilities of the heavyweights at a fraction of the price with an emphasis on ease of use by means of icon driven toolbox menus. Features include a full range of spreadsheet functions, macros and hot-linked graphing for bar, line and pie charts with 3D effects.
"Affordable Spreadsheet Technology" ***£49.95***

RiscBASIC™ Release 3.0



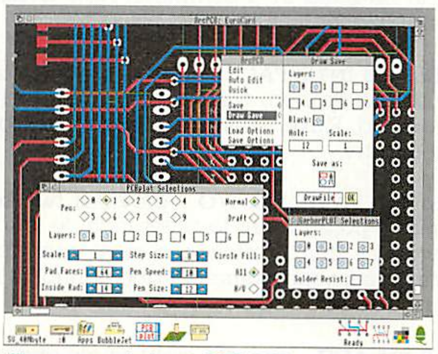
The unrivalled RiscBASIC Compiler allows you to use the interactive development environment of interpreted BASIC V & VI for fast prototyping and interactive testing followed by source code security and the fastest machine code performance of final compilation. *"If you are looking for THE compiler to go for ... my preference is for RiscBASIC" - RISC USER.* ***£99.95***

RoboLOGO™ Release 1.1



RoboLOGO provides the ideal introduction to computing allowing 2D and 3D control of an articulated humanoid or animal figure based on the standard LOGO language. The traditional Turtlegraphics and 3D Glider are also supported to utilise existing course work.
"Takes Turtlegraphics and LOGO into a new dimension" - Educational Computing. ***£49.95***

ARC-PCB™ Schematics v5.1



The range starts at ARC-PCB v1.8 for purely Digital PCB layout, graduating to ARC-PCB Professional v3.2 for combined Analogue/ Digital PCB layout and ultimately to ARC-PCB Schematics v5.1 providing both Circuit Schematic drawing and all PCB layout features. All versions include Auto-Routing, Multiple layers, Component pulling, Printer & Plotter support, & capacity up to 300,000 components. GerberPLOT & ExcellonDRILL options are £75 each. A 100% Rip-Up Retry PowerROUTER option is £195. The Alpha-Tracks Teaching Course option is £90 for a Site License.
"Performs up to professional standards." - BBC Acorn User. ***£125*** *(v1.8)*, ***£275*** *(v3.2)*, ***£375*** *(v5.1)*

All prices include VAT & Carriage. All credit cards & official orders from educational establishments accepted.

SILICON VISION LTD, SIGNAL HOUSE, LYON ROAD, HARROW, MIDDLESEX, HA1 2AG, UK. TEL: 081-422 3556, FAX: 081-427 5169.

Software Site Licenses are 3 times the RRP for use on up to 20 stations or individual machines. Enquire for specific cases. All product titles are registered trademarks or trademarks of Silicon Vision Ltd. All other trademarks acknowledged.

Part Exchange

your old system for a new one!

The table below shows examples of the balance you can expect to pay when part exchanging your old system, but please phone first to confirm

old system / new system	Master	A3000	A440/1	A4000
A4000HD80	725	570	295	*silly*
A5000HD80	1125	970	695	525
A5000HD162	1295	1140	865	695

Add £42 for Learning Curve and £85 for Home Office Packs
All A5000s are 33MHz and come with the new AKF52 monitor (AKF50 optional)

A5000 Hard Disk Part Exchange

40Mb to 80Mb - £69.00
40Mb to 250Mb - £179.00
80Mb to 250Mb - £159.00
Software transferred free

Acorn Monitor Part Exchanges

AKF12/17/40 to AKF52 - £169.00
AKF12/17/40 to AKF18 (used) - £109.00
AKF12/17/40 to AKF50 - £229.00
AKF18 to AKF50 - £169.00

Collection *and* delivery service
£20.00 for computer *or* monitor
£30.00 for computer *and* monitor

AJS Computers

123 New London Road
Chelmsford Essex CM2 0QT
tel/fax 0245 345263
All prices plus VAT

AJS

Second Hand

Master 128	£150.00
A3000	£225.00
A420/1	£395.00
A440/1	£495.00
A440	£395.00
Colour Monitor	£100.00
IDE drives from	£65.00

Please phone for current stock list.
All carry 3 months warranty.

Contex Computing

Established 1983

BANK MANAGER

Complete and versatile personal accounts program. Consistently acclaimed!
'data entry is a delight... professional...excellent product"
'impressed...ideal...easy to use'
Enter cheques and receipts. Automatic date sequencing. Reconcile statements. Search, amend and delete. Analyse expenditure. Forward cash flow forecast. Budgets. Up to 36 Bank accounts online, inter account transfers, 9999 standing orders, 99 analysis headings, unlimited postings (depending upon disk space). Reports to screen or printer. Mix foreign currencies, graphics, password, file recovery, field editing, programmable reports, Arc RAM disks, wild card analysis enquiries, sort and more.

Bank Manager £25.00

BUSINESS UTILITY

For the club accounts or small business user. Prints a "trial balance" or "P&L reports" via the programmable spreadsheet generator. Needs the Bank Manager. Saves hours of work.

Business Util Pack £12.00

TYPING TUTOR

Quickly learn to touch type. Over 90 smoothly graded lessons graduate you from the basic home keys to complete keyboard mastery. Word scan or exact key checking, targets may be revised, rhythm metronome, key click, free format options. Recommended for adult education.

Typing Tutor £15.00

SPREADSHEET MK V

Low cost, versatile spreadsheet. 26 cols by 900 (Arch) or 99 (BBC B) rows, loaded with many functions and facilities inc programmable report writer and input scripts.

Spreadsheet MK V disk £15.00

Add £1 p&p per order (Overseas £3.50). Programs suitable for all Archimedes, A3/4/5000, BBC Master, Compact and BBC B series. State computer type (eg A3000, BBC B etc) and disk type (eg 3½" or 5¼" 80 track or 5¼" 40 track)

CONTEX COMPUTING
(Ref AU), 15 Woodlands Close,
Cople, Bedford MK44 3UE

VISA Access

Tel: 0234 838347

HARDWARE AND SOFTWARE EXPANSION FOR ACORN COMPUTERS

DUAL RS423 SERIAL INTERFACE - two additional RS423 serial interfaces for communicating with RS423 or RS232 devices eg modems, printers, plotters, instruments, etc. Up to four cards can be fitted in a computer. Now available with software to enable operation at up to 38400 baud.

IEEE488 INTERFACE - enables up to 14 test and measurement instruments, from well known manufacturers such as Hewlett-Packard, Fluke, Philips, Tektronix, etc. to be connected to the computer.

16 BIT PARALLEL I/O - provides two separate 16 bit input/output ports. Other facilities include four 16 bit counter/timers, two 8 bit shift registers and eight interrupt inputs. Applications range from measurement and control to high speed data input and output.

12 BIT ADC - provides eight single ended inputs each with an input voltage range of -5 to +5 Volts. Up to 166,000 samples per second can be taken.

STEbus INTERFACE - overcomes the limitation of a maximum of four expansion cards in a computer by enabling the use of industry standard STEbus boards in an external input/output sub-system for measurement and control applications.

FORTRAN 77 COMPILER - supplied with linker, symbolic debugger and utility library. Acornsoft FORTRAN 77 Compiler Upgrade available.

FORTRAN 77 COMPILER FRONT END - !Fortran77 - compile, link and execute FORTRAN programs in the RISC OS Desktop environment. Supplied with DrawF, Graphics, SpriteOp, Utils and Wimp libraries.

GINO-F 3D, GINOGRAF, GINOSURF and HERSHEY+ - the FORTRAN subroutine graphics libraries.
Intelligent Interfaces are Bradly Associates distributor for GINO-F 3D, GINOGRAF and GINOSURF for Acorn RISC OS-based computers.

SCSI DEVICES - internal and external hard disc drives, magneto-optical removable disc drives, SyQuest internal and external 105 Mbyte removable disc drives, tape streamers, CD-ROM drives, etc.

COMPLETE SYSTEMS - ADVICE - SUPPLY - SUPPORT - Intelligent Interfaces were established in 1981 and have enjoyed a long relationship with Acorn Computers. This places them in an ideal position to advise on, supply and support systems purchased from them.

Intelligent Interfaces Ltd
P O Box 80
Eastleigh
Hants
SO53 2YX
Tel: 0703 261514
Fax: 0703 267904

INTELLIGENT INTERFACES

*INFO

Dave Lawrence and Dave Acton present their monthly collection of programs, for all Acorn Users

FLOWER POWER

We have received many Spirograph-like pattern generators over the years, but Jean-Claude's (inaccurately!) named *Polygraph* (as it draws patterns rather than detects lies...) caught our collective eye because it creates a *Draw* file as it goes, allowing the final patterns to be printed out very accurately.

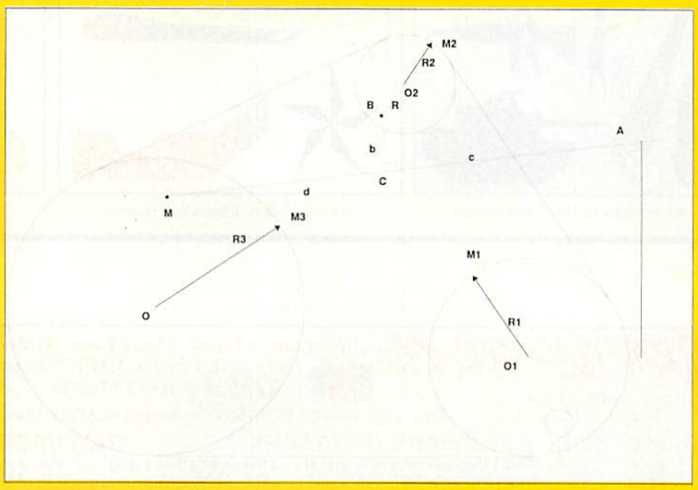
The only problem with the program is that we haven't got a clue how it works! Jean-Claude sent us in an illustration entitled 'System', but relating this diagram to the program itself without any instructions was a little tricky.

Fortunately, Jean-Claude also sent in 47 examples of patterns (all in separate files), and we've converted these to DATA statements, so now the program will first prompt for a pattern number.

The picture is then built up on screen and in a file called *Graphn* where n is the number you entered. You can press ESCAPE at any point if you get bored and view and/or print out the resulting image from *Draw*.

Please feel free to add more pattern data to the program and don't hesitate to try and work out what's going on...

Author: Jean-Claude Picard



IN ERRATUM

It would be more accurate to call this program *Polygraph* as it is capable of detecting lies! Jonathan's program presents you with seven lists of numbers between zero and fifteen.

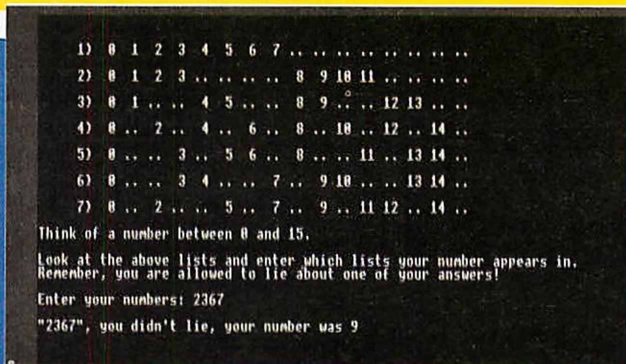
You are invited to pick a number, enter the numbers of the lists in which your chosen number appears, and the program then proceeds to guess your number – hardly difficult.

The clever bit is that you are allowed to lie: you can either forget to type in one of the list numbers or enter a bogus one. In all cases the computer will be able to guess your number correctly and also tell you which number you lied about.

At first sight this may not seem frightfully useful, but a little thought will reveal that this is an error detection and correction algorithm. Say you had a communication channel open between two computers, but it was not very reliable – errors may well creep into your data stream and cause all sorts of havoc.

One approach to reduce errors would be to add checksums or Cyclic Redundancy Checks (CRCs) to the data. The receiving machine would then be able to find out if the data was in error, all it could do though would be to ask the other machine to retransmit the faulty block of data.

In most situations this is fine, but what if the link was uni-directional (for example a satellite link) and it was not possible to let the sender know there was a problem. You can't just ignore this data. In this case the answer is to use a system such as the one used by *FindError*.



Within this system a few extra bits are sent with the actual data, which are then used to detect and correct errors in the data.

In *FindError* a total of seven bits are used to encode four bits of data. (Having chosen your number, go through the lists in turn and if your number is present write a '0', if it is not write a '1'. For example 11 (in lists 2, 5 and 7) gives 1011010. Note that the first four bits are the binary code for 11). This means that 14 bits would be needed to encode one byte – quite a hefty overhead – but if you require your data to be intact then it's probably a price worth paying.

Similar 'forward error correcting' codes are used by digital audio equipment to compensate for problems such as dirty CDs, poor mechanical tracking and so on.

Author: Jonathan Simmons

WAVE ON!

This useful desktop program allows you to load, twiddle with and save sound samples. You can feed it a text file description of sound (drag it to the icon bar icon or editing window) to generate a Waveform file (type LinSignd, &D3C, drag or double-click) or a Sample file (type STsample, &CB5 or &006, drag or double-click) and it can produce Waveform files (type LinSignd, &D3C), Sample files (type STsample, &CB5) or Voice files (type Module).

First, you will need to load a file of a valid input type. Once the file has been loaded you will be presented with the editing window, helpfully titled 'Edit sample'. Editing only affects the STsample and module voice formats. You can edit:

- The sample name. If you save a module voice file, this is the voice name used by the resident sound system.
- The sample volume. This merely sets the overall volume of the sample. You still have control over the actual volume, which is scaled to fit.
- The repeat offset. Ranges from 0 (start of sample) to the sample length less the repeat length. If the sample is to repeat, it will repeat from this position.
- The repeat length. Ranges from 0 (whole sample) or 1, to the sample length less the repeat offset (number of bytes to repeat). The sample will start repeating once (repeat offset + repeat length) bytes of it have been used.

The repeat offset and length may be altered via the Waveform window (accessed via the menu). Click Select to set the repeat offset, or Adjust to set the length. If you try to set a negative length it defaults to 2. To switch off repeating, it is necessary to use the editing window. The edit window can also be opened via the menu option 'Edit' or by clicking Select on the MakeWaves icon.

Assuming you have a sample loaded, you may play individual notes by clicking on the appropriate key in the Keyboard window. To stop the note, click on the rightmost icon – the speaker with the crossed-out note above it.

If you open the window to its maximum size, you will see this: C-1,&3000 and two others like it. This means that the key the arrow is pointing to is the same as in a (Sound)Tracker file, note C in octave 1, and, using the SOUND command, pitch &3000. (See also notes below.)

As usual, you can save the sample via the 'Save' option on the menu. You will note that this has a sub-menu listing the three possible filetypes: LinSignd, STsample, and Module. Note that if you loaded an STsample file, you will not be able to save a LinSignd file.

The filename used is that of the file loaded or last saved, regardless of filetype. You can also access the save windows by clicking on the file icons in the editing window.

Workspace is claimed from the RMA. The amount claimed is always twice the file size. If not enough memory is available, or a filing system or processing error occurs while loading a file, the workspace is released, and the editing and saving functions become unavailable until a sample file is loaded.

SAMPLE DESCRIPTION FORMAT

This must be stored in a text file. Blank lines and comments (lines beginning with '#') are ignored.

It is assumed below that when using a (Sound)Tracker file editor the note being played is C in octave 1. The difference between semitones is 1 (this is not assumed).

Each note in the descriptor file is described using the following data types:

- P Pitch, -36 to (almost) +36, 0 is middle C, not needed if rest, or note specified, Fractional parts acceptable.
- N Note, C0 to B5, Middle C is in octave 3, not needed if rest, or pitch specified.
- V Volume, 0 to 127, Linear. 0 means rest.
- L Length, anything above 0, Unit 256 bytes, approx. 0.64 seconds, fractional parts acceptable.
- B Pitch bend, can't move outside pitch range, speed of change depends on length of note, fractional parts acceptable.
- W Volume change, can't move outside volume range, speed of change depends on length of note.
- Z Noise, Percentage.

Examples (times given are approximate):

P0 V127 L4 – middle C for 2.5 seconds at full volume

ND#3 V63 L1 – D# above middle C for .6 seconds at half volume

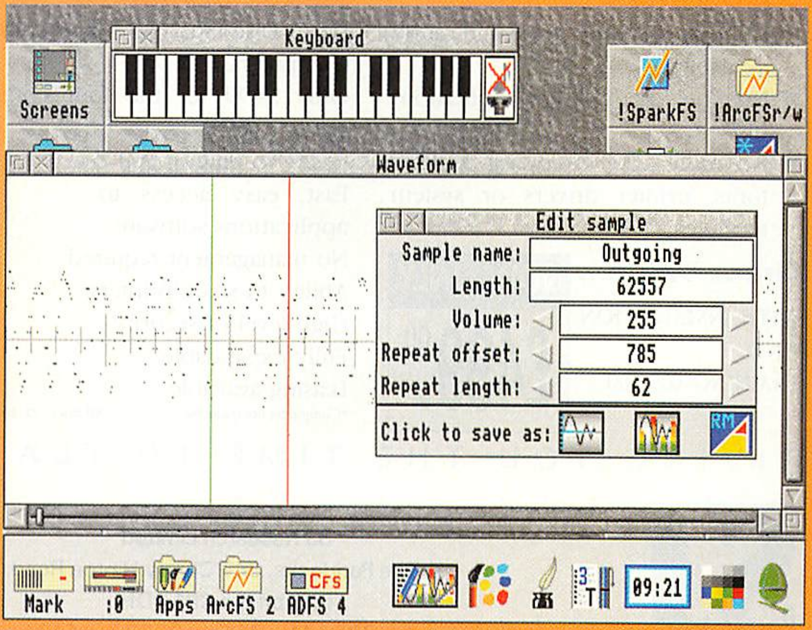
P0 B7 V127 L2 – middle C bending up to G in 1.3 seconds at full volume

P7 B-12 V85 L4 – G above middle C bending down one octave in 2.5 seconds at two thirds volume

NC4 V127 W-127 L4 - C above middle decreasing from full volume to quiet in 2.5 seconds

NC2 B-2 V127 W-127 L4 Z20 - A good drum effect!

V0 L1.5 - Rest for 1 second



The module voices generated by this program partially conform to the extended pitch scale used by the SOUND command. Middle C may vary depending on the sample data; however, if it was included in a textfile definition or a file generated, it is at pitch &3000. This is also true for LinSignd and STsample files. The step between semitones is 1024/3, and the step between octaves is &1000. This is as normal.

Author: Darren Salt

Turing Tools

149 Campbell Road, Cowley
Oxford, OX4 3NX, UK
Tel. (0865) 775059

SpoilSport

RISC OS 3.x System Defense Kit

"They rename the hard disc... scramble the configuration... turn off the auto-boot... reset the system clock... do factory resets..." The solution is **SpoilSport. £30.00 inc.**

IronMask 2.1

Multi-user File Security System

'Frozen' directories or application folders are made unchangeable except by the IronMask superuser. **'Shielded'** files are made completely inaccessible except to their owners. User authentication. Failsafe encryption. The software solution for RISC OS security in school or office. **£75.00 inc. (IronMask 1.2 Personal Edition now only £49.00).**

IronMask 2.1 + SpoilSport £90.00. 10% OFF all prices for prompt payment (14 days).

Prices quoted for 1 computer. British Isles postage included. Overseas add £3.00. ☎ for educational and site prices, further information or factsheets. Allow 14 days delivery.

Inkjet & Bubblejet Refills

"CARE THREE PACK" will refill HP51608A Cartridge 3 times. The Canon BC-01/SJ48 Cartridge 3 times. Three Pack available in Yellow, Magenta, Cyan, Red, Blue, Green, Brown, Purple, Black **£14.98 each.**
"TRI-COLOUR PACK" 3 refills of Yellow, Magenta and Cyan **£17.95.**
"CARE SIX PACK" will refill HP51608A Cartridge 6 times. The Canon BC/01 Cartridge 6 times.
6 PURE BLACK REFILLS ONLY £24.95
Please state type when ordering

New Heat Transfer Products for C.D.T.

Heat Transfer onto Ceramics Glass, Aluminium etc. using T Shirt printing ribbons or HP Deskjet heat transfer inks

Transfer LAQ 125ml £14.95

HP Deskjet Heat Transfer Inks

Black Refill £14.95
Tri Colour Refill £39.95
Can be used with Transfer LAQ

Heat Transfer Paper for Bubblejet and Inkjets

Print onto paper using normal ink then iron on T Shirt **£9.95** per pack
Not suitable for use with Transfer LAQ

Education orders welcome

Colour Printer Ribbons

Reloads for:-
Star LC200 9 Pin 4 Colour (Normal Ink)
1 Reload – £5.99 .... 5 Reloads – £23.95
Star 24 Pin 4 Colour (Normal Ink)
1 Reload – £6.99 .... 5 Reloads – £29.95
Citizen Swift 4 Colour (Normal Ink)
1 Reload – £6.99 .... 5 Reloads – £29.95
Panasonic KXP2180/2123 4 Colour (Normal Ink)
1 Reload – £6.99 .... 5 Reloads – £29.95
Seikosha SL95 4 Colour (Normal Ink)
1 Reload – £6.99 .... 5 Reloads – £29.95
Ink ribbons also available in Gold, Silver, Magenta, Orange, Purple, Brown, Green, Blue, Red for a wide range of printers.
Special re-ink for Panasonic printers, Star LC200 9-pin, Epson LQ100 black bottle will re-ink 100+ ribbons £9.95
Don't throw away your plastic printer ribbon cases when the ribbon wears out. Just take the top off, take out the old ribbon and reload it with a new one. It's simple. Full instructions supplied.

T-Shirt Printing

4 Colour Citizen Swift	£29.95
4 Colour Citizen Swift (Reload)	£14.95
4 Colour Star LC10	£14.95
4 Colour Star LC200 9 Pin	£19.95
4 Colour Star LC200 9 Pin (Reload)	£12.95
4 Colour Star LC200 24 Pin	£29.95
4 Colour Star 24 Pin (Reload)	£14.95
4 Colour Seikosha SL95	£29.95
4 Colour Seikosha SL95 (Reload)	£14.95
1 Colour Citizen 120D/Swift	£11.95
1 Colour Star LC10	£11.95
1 Colour Star LC200 9 Pin	£11.95
1 Colour all Star 24 Pin	£11.95
1 Colour Epson FX80/LQ400/MX80	£11.95
1 Colour Epson LX80	£11.95
1 Colour Epson FX100	£11.95
1 Colour Panasonic KXP 1080	£11.95
1 Colour Taxan/Canon 1080A	£11.95

available for a wide range of printers

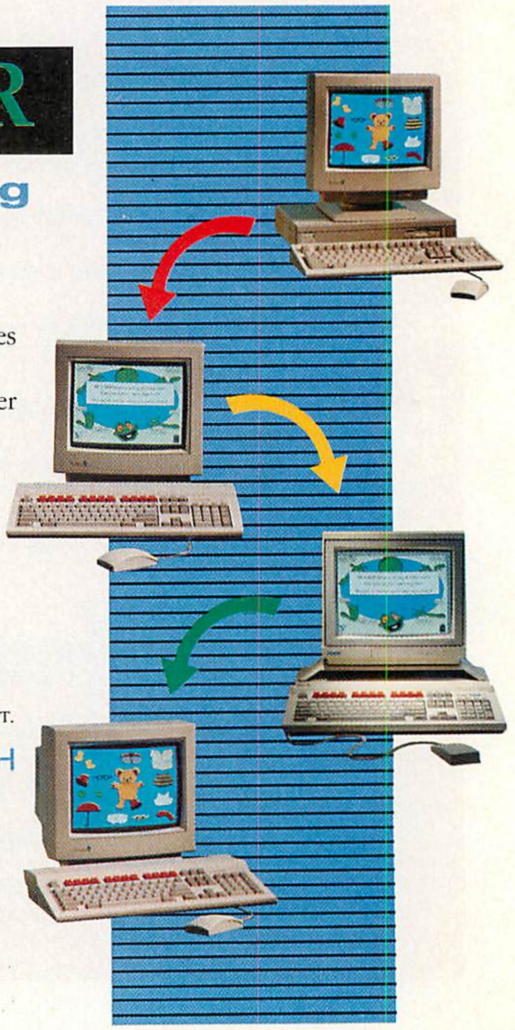
All Prices include VAT and Carriage
How to order: Enclose cheques/PO made payable to CARE ELECTRONICS or use Access/Visa.

CARE ELECTRONICS
Dept ACU, 15 Holland Gardens, Garston, Watford, Herts, WD2 6JN.
Tel: 0923 894064 Fax: 0923 672102

NEXUS JUNIOR

Cost Effective Resource Sharing for the Primary School

Four Computers: One Hard Disc



Save Time...

- All your software always instantly available.
- No more lost or broken applications discs.
- No more disc swapping to load fonts, printer drivers or system modules.

Great Value...

WITH INSTALLATION AND TRAINING £699.00

NOW ONLY £499.00

Nexus Junior

Hard Disc Sharing for Archimedes Computers.
Only £499 for the four computer starter pack*.
Ready to plug in and go.
Fast, easy access to applications software.
No management required.
Ability to share printers.
High level of security.
Fully expandable.
Leasing available.

*Computers not included.

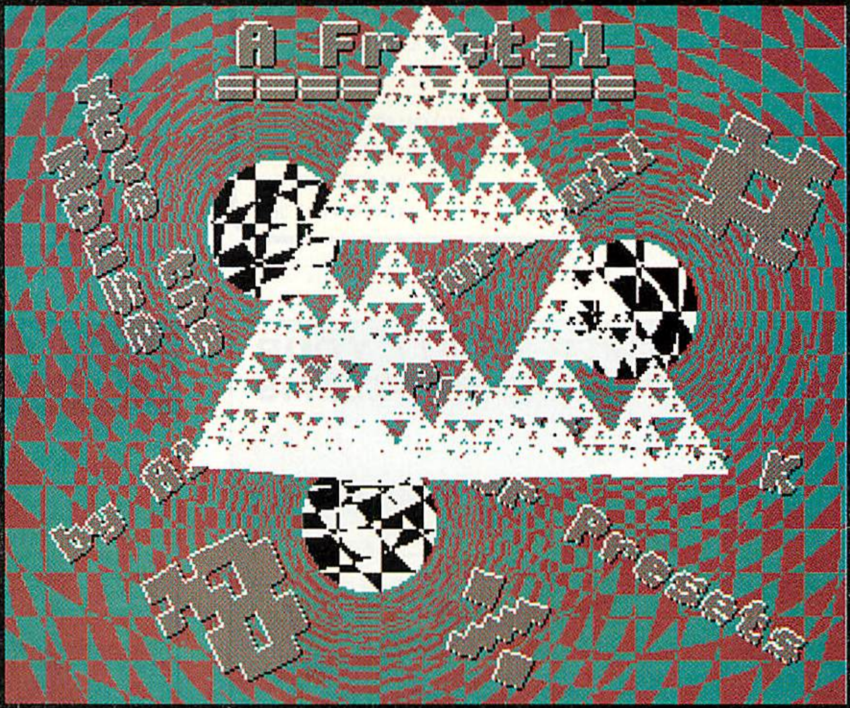
All prices exclude VAT.

GIVING YOU THE TIME TO TEACH

SJ RESEARCH

SJ Research Limited
J1 The Paddocks, 347 Cherry Hinton Road,
Cambridge CB1 4DH
Tel: 0223 416715 Fax: 0223 416440

FAST FRACTALS



The speed of this demo was the feature that most caught our eye. A Sierpinski Pyramid is plotted, twirled, split into bits and reconstituted, all in real time.

After the background is plotted, the pyramid is displayed and can be rotated about two axes by moving the mouse horizontally and vertically. Alternatively, press A-K to run one of 11 preset sequences:

- A – y axis spin
- B – x axis spin, with a 'wobble'
- C – level 2 'wobble'
- D – alternating x and y rotations
- E – levels 1 and 2 do a slow wobble, the rest do a fast one
- F – level 1 does a wobble, the rest spin slowly
- G – standard triangle, then all but level 1 do a wobble
- H – progressive splits, followed by simultaneous recovery
- I – fast spin with slow spin superimposed
- J – slow tumble
- K – triangle, with alternate levels going opposite ways

Running the program should help explain what constitutes a 'level 1 wobble' and the like. It may also be helpful to understand a little of how the program works.

In a true Sierpinski triangle, the pattern that emerges is the equivalent of plotting a recursive triangular pattern. That is, plotting a triangle, then plotting three half-size triangles within each corner of the original, and continuing until a specified depth is reached.

Most Sierpinski look-alikes are plotted recursively in this manner, and Sierpinski pyramids can also be produced recursively by a simple extension to this method.

For speed, Alistair's program works from the bottom up. That is, he plots a very small triangle: 2 by 2 pixels. Treating this as a little sprite, it is plotted three times to form a 4 by 4 pixel sprite. This in turn is plotted three times to form a 16 by 16 image and so on. The OS_SpriteOp call is not used, with a custom-written sprite-plotting routine giving much better performance.

The 'level 1s and 2s' mentioned in the list of presets therefore refer to the stages in the building of the full-size sprite. Alistair points out that to avoid compound errors accumulating as the pyramid is built up, some rounding is needed.

Perspective, by which the more distant portions of the pyramid would be smaller, is ignored for reasons of speed. The depth of any one point (its z co-ordinate) is basically ignored, as if you are, as Alistair puts it, 'viewing the pyramid from infinitely far away using infinitely expensive binoculars'. The speed and movement of the demo seem to compensate for the lack of perspective so you are always convinced that what you are looking at is actually 3D.

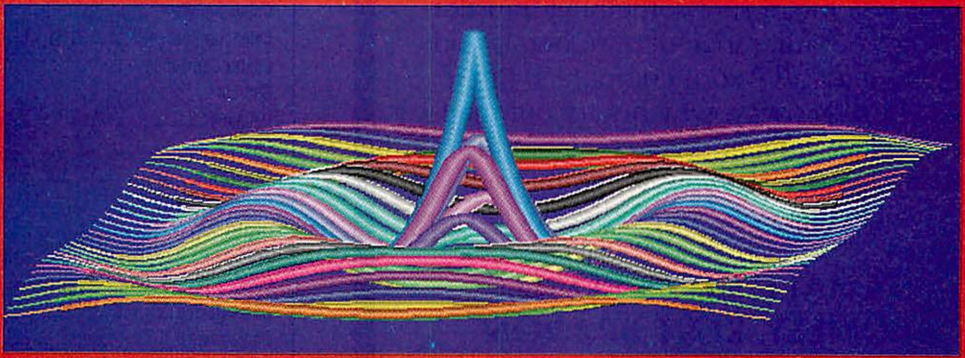
Looking at the structure of the application you will see that the Basic program is in fact split up into bits, loaded with the LIBRARY command. For example, *Library.Background* contains routines to plot the background.

This makes for more manageable program chunks (favoured by C fans) and Alistair's error handler reports not only the error and line number, but the library file in which it occurred, so the appropriate line can quickly be edited.

Author: Alistair Turnbull

THE MONTHLY VIBE

We can hardly let a month go past without a contribution from Jan, so let's kick off with *NBFill*. Apparently Jan once had a Newbrain (no, don't laugh) and he says that the flood fill was well strange. Amongst other things it went beserk if it had to fill an area with dots in. Jan has therefore dutifully emulated that algorithm for us all, added some colour and, well, er, told it to fill an area with dots in.



NeonPeak plots a standard three dimensional graph, but using bands of fluorescent neon colours. *Squairs* draws patterns in a recursive manner; the finished patterns are not very interesting, but the construction process is fun to watch.

The program always finishes and the patterns are always symmetric. Finally, *Invisiball* is a one-liner that bounces an invisible ball around the screen. Sounds boring, doesn't it? Well, run it and see!

Author: Jan Vibe

ACORN USER ADVERTISERS INDEX

BACKGROUND PRINTING

Background printing, whereby your machine doesn't hang up for half an hour while some particularly complex *Impression* document trundles its way out, has long been a topic for magazine articles.

The latest and most elegant means of printing in the background that we have seen yet comes in the form of Tony Patterson's module, *SpoolMod*, which is assembled by *SpoolSrc*. Load the module with *RMLoad – you may want to add a line to your boot file to do so.

Some applications, like *Pipedream* for example, allow printing to a file and this can subsequently be dropped onto the printer driver icon for background printing.

There are two disadvantages to this. Firstly, printing only works in the desktop which is no good if you hop in and out of it at regular intervals. Secondly, there are inevitably two stages to printing – the output to the file and then the dragging of the file to the printer driver. Tony's module gets around both problems by providing two star commands:

*PrintFile <filename> simply prints the named file in the background.

*PrintWatch <filename> has a more subtle action. The given filename is 'watched'. If the file is ever closed then it is immediately printed in the background. If no filename is given, the current one is shown.

To use *PrintWatch, choose a suitable filename, such as ADFS::HD.$.printfile and enter the command (or add to your boot file) appropriately:

```
*PrintWatch ADFS:HD.$.printfile
```

```
*Help PrintSpooler
==> Help on keyword PrintSpooler
Module is: Print Spooler      1.00 (29 Aug 1993)

Commands provided:
PrintFile      PrintWatch
*Help PrintFile
==> Help on keyword PrintFile
*PrintFile prints a file in the background.
Syntax: *PrintFile <filename>
*Help PrintWatch
==> Help on keyword PrintWatch
*PrintWatch waits for the named file to be closed, then prints it. If no file is
given, the current PrintWatch filename is reported.
Syntax: *PrintWatch [<filename>]
```

Then, to print in the background from *Pipedream* say, select 'print to file' on the Print window and enter your print file name. In the case of *Pipedream* you can save the name of the print file with the document, so you need only type it once. Now print the document. When spooling to the file has finished, *SpoolMod* will spot this and start printing it in the background automatically.

The module works by intercepting the UpCall vector. UpCalls are calls made by Risc OS to interested parties prior to key events. For example, so that directory viewers can be kept constantly up to date, UpCalls are broadcast whenever a file is created, deleted or modified in some way. The Filer intercepts the UpCall vector and watches out for such events.

By using these UpCalls *SpoolMod* spots when the print file has been closed. UpCall 257 is issued when a file is opening for output using OS_Find. *SpoolMod* spots this and compares the filename with that specifed by *PrintWatch. If a match is found, the handle of the file being opened is saved. Whenever a file is closed, another UpCall (259) is issued and seeing this, *SpoolMod* sees if the handle is from our print file. If so, printing begins.

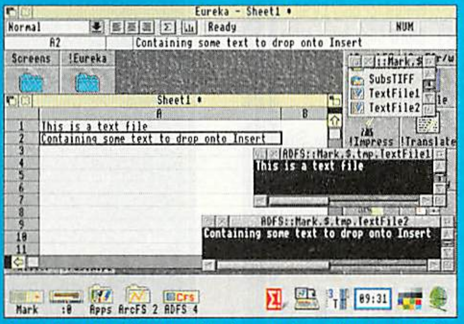
Printing itself is done using a buffer which is topped up as needed by reading bytes in OS_GBPB. The call OS_AddCallBack is used to ensure that the printing routine gets called at the next 'safe' opportunity. Activities like printing should never be carried out within interrupt or event routines since this will almost certainly crash you machine.

Author: Tony Patterson

FILE TYPE?

This small application by regular Barry Wickett gets around those situations when you want to insert a text file into an icon or application window, but the application only expects typed characters.

For example, a desktop tone-dialler might expect you to type in a telephone number and press RETURN. It's far easier to save all important numbers as text files in a directory and drag the appropriate one onto the icon. If the application isn't 'friendly' though, the file will just be ignored. What is needed is an application which literally 'types' a text file at the caret – this is the function of *Insert*.



Simply position the caret in the window or icon desired and drag a text file onto the *Insert* icon. It will be typed in for you. An option menu offers three modes:

- Immediate – text will be typed straight away
- Click icon – text will be typed after you click on the *Insert* icon
- Shift icon – text will be typed when SHIFT is pressed with the pointer over the *Insert* icon

These last two modes permit the same text to be inserted as many times as necessary. Currently there is a maximum file size of 16K which should be enough for most situations.

Author: Barry Wickett

QUICK SAVING

Tim says that he wrote this utility to provide a feature lacking in *TinyDirs*. *Save* provides a place to save files in the form of an icon on the icon bar. Temporary files and 'just in case' copies of things can be dragged onto the *Save* icon and will be put in a pre-set directory. It's also very handy in situations where you've brought up a save icon and carefully selected options only to find there is no directory viewer to drop the file into.

Click on the *Save* icon and it will bring up a small window. Simply drag the directory icon shown to the desired temporary directory and click on *Save* to save this setting.

You can also 'lock' the setting by clicking on Unlocked (which will change to Locked). This prevents the *Save* window being opened in the usual way which Tim says might be very useful in a classroom situation. When locked, the window can still be opened, but only by clicking on the version string in the Info window. (Darn, that's given the game away.)

Author: Tim Howard

*QUIT

Firstly in this last bit, a plea to a *INFO submitter. Nick Kennedy sent us some good bits which we would like to use, but his address has become separated from his disc. Do drop us a line to let us know where you are Nick! This is also a good opportunity to remind you all to please put your name and address on the disc label and in a text file.

If you would like your own masterpiece to appear in *INFO, be it the shortest of tips or the vastest of applications, then you need only put it on a disc and send to: *INFO, Acorn User, Europress Enterprise Ltd, Europa House, Adlington Park, Macclesfield, SK10 4NP.

Please include a stamped, addressed envelope to ensure your disc's return. Also, include instructions, preferably as a simple text file, for each program submitted. These can be in note form if you like and at the simplest should say what the program does and how to use it.

Explanation of how your program works is also useful if it does something unusual, complicated or very smart. Finally, do please watch out for viruses and try to not to send us anything 'infected'.

SOFTWARE SHOWCASE

PUBLIC DOMAIN

Please make cheques payable to 'The DataStream'

THE DATASTREAM

Dept. AU6, 34 Norbreck Close, Great Sankey, Warrington, Cheshire, WA5 2SX

SPECIAL OFFER PACKS

Six discs full of *archived* software for only £4.99.

SPECIAL OFFER NUMBER 1 - DRAW ClipArt **NEW**
High Quality archived DRAW ClipArt including Cartoons, Borders, Chess Pieces, Star Trek, Flags, Dinosaurs, Maps.

SPECIAL OFFER NUMBER 2 - Games Pack I **NEW**
Son Of Gyrinus 3.6, Lemings, Invaders (2mb), DinoSaw, Styx and virtually every 32bit Tetris game (Tertis, HexTris, CTetris).

SPECIAL OFFER NUMBER 3 - Games Pack II **NEW**
Arkanoid, Wizard, PlanetLnd, Snake, JetSetWilly, HexAtoms, Othello, PlanetWar, MineHunt, Dungeon, NetHack (RPG) and a selection of great games from AMF the Doomwatcher.

FREE!!

Buy anything from this advert and get a free copy of our highly praised catalogue disc, or simply send £1.00 to the above address.

PUBLIC DOMAIN

Pack 1
Powerbase Database
SSS Spreadsheet
WordHound Theasaurus
Plus Much More

Pack 2
Translator - Image Importer
Process - Image Processor
For Your Eyes Only - JPEG/GIF
Plus Much More

Pack 3
TemplED - Template Editor
Dissi - ARM Dissassembler
ZAP - Text/C/Basic Editor
Plus Much More

Each pack contains the latest versions of these invaluable Freeware/Shareware applications

Buy any 1 pack for just £6
Or all 3 packs £15

Satisfaction Guarenteed
Same day despatch

Send a £1 coin NOW for **Demo Pack 14**

Arcaynia

PO Box 1927 : Sutton Coldfield : B74 3QZ

STATISTICS

Statistics with Graphics

1st, 1stJr, and 1stL lead the way.
Our ESTABLISHED products cover levels from school (GCSE) to advanced research.
Upgrade paths, Site licences and Loan copies are all available

Serious Statistical Software, Lynwood, Benty Heath Lane, Willaston, South Wirral L64 1SD Tel 051 327 4268

SOFTWARE/HARDWARE

The East Midlands Specialist Dealer for
Acorn Computers

Sound Practical Advice - Demonstrations Daytime, Evenings and Weekends
Memory Upgrades - Hard Disc Drives - Printers - Scanners - Software
Academic's - Teacher's - Student's Purchase Scheme - Mail Order Available
0% and Low Cost Finance Terms Available (Subject to Status)
Telephone Hot Line Technical Support - Spares and Repairs - Home Tuition
High Definition Mono Scanning - Mono and Colour Printing Service Available

Acorn Approved — SELECTIVE COMPUTER SERVICES — **Telephone and FAX (0332) 690691**

8 Old Gate Avenue - Weston on Trent - Derbyshire - DE72 2BZ

SKYFALL PD

A huge range of quality lowcost software.

BIG 1000 DISC CHOICE

No PD Library offers a choice of PD as wide as Skyfall does. So don't bother collecting other PD libraries catalogue discs. Send for the one that counts. And choose Skyfall.

Please send £1 for the Printed Catalogue & Demo Disc to;
PO Box 2220, B'ham, B43 5RZ.
Enquiries: 021 358 7078.

EDUCATION

VICTORIAN BYGONES
High quality, authentic clipart from the late 1800's. Ideal for **teachers, historians** or **anyone** who wants to add individual style or humour to their **DTP work**. A six-disc set of compressed images selected from a large library of original engravings & illustrations. Suitable for all Acorn machines. Fully catalogued. **ONLY £19.99 inc. site licence (+ £1 p&p).**

HEADTEACHERS! - SCHOOL BROCHURE TIME?
Save time & improve your schools' image too. Have your school brochure professionally produced by someone who understands education. Highly cost effective. Phone (24 hr.) or write for details.

Gable Design, 5 Cypress Gardens, Blyth, Northumberland, NE24 2LP.
☎ 0670 790177

ALPINE SOFTWARE
PO Box 25, Portadown, Craigavon, BT63 5UT.
Tel/Fax 0762 342510 (Access/Visa welcome)

Creator II is the latest version **£49** of our popular *Games Designer*. Features include animated sprites, music and sound effects, screen and map designers, paths, bargraphs, scroll text, starfields, platforms, ladders, doors, 100 page User Guide etc. So, whether you want to produce a fast-action blast, a challenging platform game, or even a cool demo, Creator II is what you need. What you **don't** need is programming experience! *Add ons: Music Discs 1-5 £1.50 each, Sound FX Disc 1 and NEW Disc 2 £5.00 each, Sprites £5.00, UltraSonic Music Editor £30.*

Other products: ALPS adventure creator £34.95, *Cyborg* £25.95, *NEW Adventure Collection* £15, *NEW Explorer* educational space game £30.

Why not send a blank disc and 36p SAE for our *NEW* Product Guide/Demo disc?
Add £1.00 towards p&p. EC £2.50, Outside EC £4.50

FIVE STAR MARKETING — **THE BEST VALUE IN P.D.**

Games pack offers No.s 1 & 2: *Each contains 3* ***compressed*** *discs full with great games.*
Utils pack offer: *3* ***compressed*** *discs full with loads of desktop and disc utilities.*
Buy any two or more packs and get our demo disc free. One pack for £4, two packs for £7, or all three packs for only £10.
Our latest demo disc/catalogue for just £1.
Five Star Marketing, 4 Shepherds Walk, Bushey, Herts. WD2 1LZ.

SOFT . . . . SECTOR — **Tel: 0962 863225**

UNBRANDED DISKS: SONY, VERBATIM, KAO, DYSAN etc.
(Subject to availability). 100% Certified Guaranteed Error Free
Packs of 10 supplied with FREE Library case

3.5" DSDD	£5.30
3.5" DSHD	£7.60 ~~£10.16~~
5.25" DSDD	£3.99
5.25" DSHD	£6.11

Labels included. Envelopes & labels included
Enquiries welcome for bulk orders

LOCKABLE DISK BOXES

50 Cap 5.25"	£6.75 each
100 Cap 5.25"	£7.99 each
40 Cap 3.5"	£6.25 each
80 Cap 3.5"	£6.95 each
100 Cap 3.5"	£7.75 each

ACCESSORIES

Library Cases 10 Cap 5.25"/3.5"	£1.20 each
Mouse Mats Red, Blue, Grey	£2.75 each
Disk Labels 3.5"	£1.40 per 100
Disk Labels 5.25"	£1.80 per 100
Disk Envelopes 5.25"	£3.65 per 100

200 Cap 3.5", File Drawer, Self Assembly £12.99

Printer Ribbons Toner cartridges – Original and Compatible – Ring for Prices
ALL PRICES INCLUDE VAT - NO EXTRA CHARGE FOR POSTAGE & PACKING
GOVERNMENT AND EDUCATIONAL ENQUIRIES WELCOME

SOFT SECTOR 58 Andover Road, Winchester, Hants SO22 6AG

SPECIAL NEEDS

CJ Computing
Your Southwestern Acorn Dealer

NOW OPEN IN STROUD

Repairs
•
Special Needs
•
Educational Dealer
•
Latest Hardware and Software

57 Westbury Hill
Westbury-on-Trym
Bristol BS9 3AD
Tel: (0272) 624553
Fax: (0272) 490901

ACORN USER MAGAZINE

SPECIAL

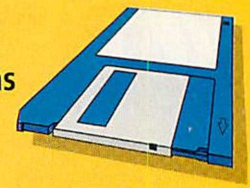
SUBSCRIPTION OFFER

Take out a year's subscription to Acorn User, the best-selling Acorn magazine, for just £35.40

and receive all this . . .

- **12 ISSUES OF ACORN USER DELIVERED POST FREE EVERY MONTH**

- **THE MONTHLY ACORN USER COVER DISC**
Packed with games, education resources, helpful utilities and complete applications



PLUS

THE ACORN USER HANDBOOK

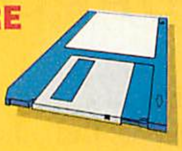
Get the most from your machine with this indispensable guide 48 pages of . . . time-saving tips . . . jargon busting . . . key shortcuts . . . software advice . . . hardware options . . plus a beginner's guided tour



PLUS

THE ACORN USER SHAREWARE COLLECTION DISC

Featuring some of the best shareware around, including . . .



ZAP: One of the best file editors
PROCESS: Scratch, ripple and twist with this brilliant image-processing package
HACKER: Hack into your favourite game
BLACKHOLE: Tidy up with a desktop dustbin

AND 13 OTHER SUPERB APPLICATIONS
ARMCode, AutoFocus, FastBrot3, FileTree, InfoScoop, Makro, Mode, ModeView, Postcalc, PtrWrap, Status, WinCtrl, XHelp.

PLUS

CHOCKS AWAY

A complete game

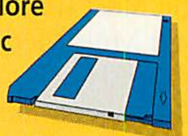
This classic game from leading games company, Fourth Dimension, combines flight simulation with gripping arcade action. Chocks Away sees you flying in a red Tiger Moth over landscapes and seascapes, blasting everything in sight. You can fly solo missions or with a friend: either way this rates as one of the all-time greats



PLUS

THE ACORN USER EDUCATION DISC

Packed with classroom resources, this disc has a range of materials that explore all areas of the curriculum. The disc includes classroom posters, a selection of European maps and many complete lesson resources to use with popular applications.



Use the dinosaur clip art in *Datasweet*, tackle data collection with ready-made forms for *Junior Pinpoint*, discover probability using *Eureka*, teach letter recognition with *My World* examples and much more.

Call our subscription hotline (0483) 727762

THE ACORN USER EDUCATION RESOURCES DISC

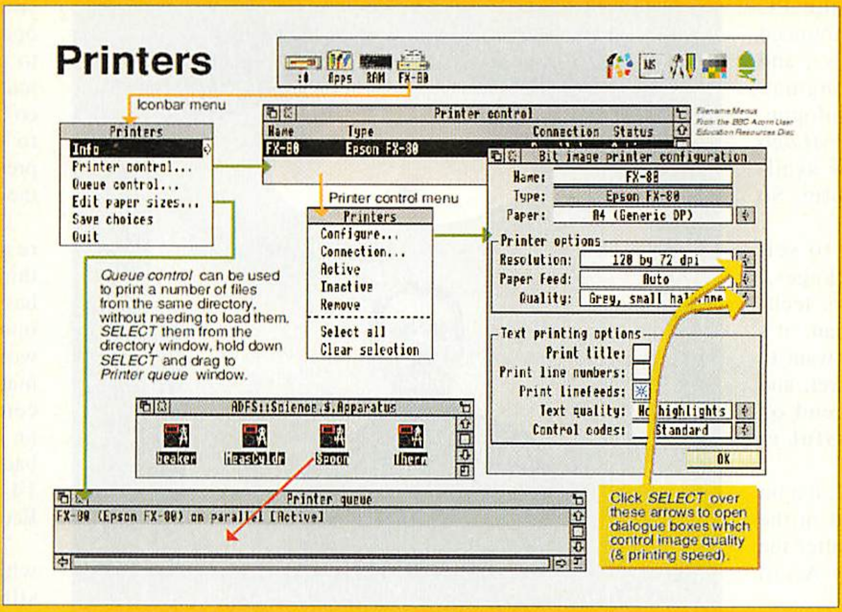
The *Acorn User* Education Resources disc contains four sets of useful education resources which you can start to use straight away in the classroom.

● **Classroom posters:** This set of specially commissioned posters will provide at-a-glance help for all Acorn users, though they are especially useful in the classroom.

Each poster is provided as a colour *Draw* file which can be printed out at the required size. Although the posters look stunning in full colour, they are just as clear if printed in black and white.

Using easy-to-follow diagrams the posters cover all sorts of aspects of using Acorn equipment. The topics covered include the following:

- *The desktop*: its layout, the various areas, and what all the different parts of windows do.
- *Draw*: the menu structure, how to use the tools on the toolbox, using the text tool, printing, how to set up a grid and how to use the style submenu.
- *Edit*: the menu structure, and how to create text areas in *Draw* from files in *Edit*.
- *Paint*: the menu structure, how to create a new sprite, and how to use the tools in the toolbox window.
- *The Risc OS 3 Printer Manager*: the menu structure, and how to use the configuration and queue windows.



● **Training files:** A selection of files from the range of training materials available from iTa. These files are set up for use in the classroom with the following products: *DataSweet*, *Eureka*, *Junior Pinpoint* and *My World*. The disc also contains details of where you can obtain more training materials, as well as how to obtain training for using Acorn computers in the classroom.

● **Anglia TV clip art:** The Anglia Television Media department produces a large range of educational software, including the Key range of software – databases, spreadsheets, multimedia authoring packages, clip art and CD-Roms.

On this disc is a *Draw* file containing a selection of the best clip art from the range of products, and you can use them yourself by simply saving selected objects out of the file. The examples include locomotives, space satellites, castles, dinosaurs, famous faces, ships and more.

● **Maps of Europe:** A collection of *Draw* files containing outline maps of Europe. These are suitable for all sorts of topics, from printing them out and writing on all the major cities in the correct positions, to inclusion in DTP documents dealing with geography.

Subscription form for Acorn User

SUBSCRIPTION HOTLINE
Call now on 0483 727762
quoting ref: AUP/03/94 Mon-Fri, 9am-5pm

1 ☐ Please enrol me as a subscriber to **Acorn User** magazine (£35.40 for 12 issues)
All subscriptions will commence with the next available issue

My surname (Mr/Mrs/Ms) ....

First names ....

Address ....

Postcode .... Telephone ....

2 I enclose a cheque/postal order for £ .... for .... subscription(s) made payable to Acorn User
or Please debit my ☐ Access ☐ Visa

Expiry date ....

Card No. ☐☐☐☐☐☐☐☐☐☐☐☐☐

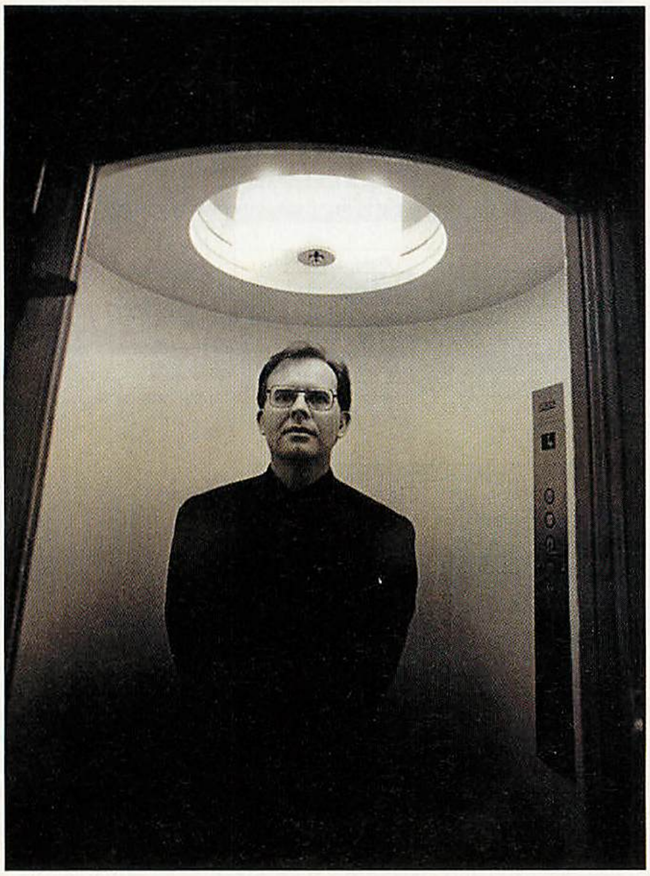
Signature .... Date ....

3 Now send your completed form and payment to Acorn User, PO Box 425, Woking, Surrey GU21 1GP. This offer closes on 28 March, 1994. Back issues are also available. Please state if credit card billing address is different from delivery address. Photocopies or handwritten versions of the above information are acceptable, but please quote the code above. Contact the number below for subscription rates outside the U.K. Europress Enterprise Ltd offers you the chance to receive information about other organisations goods and services. Please tick the box if you prefer not to take advantage of this. ☐

Message to existing subscribers: if you would like to renew your subscription early to receive these free gifts, please call (0483) 727762

THE MOXON INTERVIEW

JULIAN PIXTON



JULIAN ANDERSON

It seems to be all the rage these days to start launching Acorn products in the PC arena. Colton has announced *Fireworkz for Windows*, and flicking through Longman Logotron's latest catalogue, notable titles like *FirstLogo* and *PinPoint* are now available on the PC platform. So what is it all about?

'It's not so much to sell huge numbers of packages,' explains Julian Pixton, technical director at Longman, 'it's more the case that we want to access the export market, and we simply can't depend on Acorn to be successful in markets like the USA.'

Fair enough, but isn't it a bit risky getting involved in the cut-throat PC market after the comparatively friendly Acorn environment?

'Being a success isn't just down to product development,' says Julian. 'We've got a phenomenally large warehouse in York, the size of a football pitch, where we dispatch products. You see small companies with excellent ideas floundering about because of logistical problems; you get a successful product and the problem then becomes distribution.'

And I suppose that a number of smaller Acorn companies can't afford this sort of backup. But if only large companies can move into other markets, where does that leave Acorn-specific people? The growth of the Acorn market is hardly exponential, is it?

'This is a big issue in the Acorn world,' Julian says. 'People in the Acorn market don't really appreciate who the competition is. To me, our competitors are people like Microsoft, Borland and Lotus rather than Computer Concepts or Colton. If people had a clearer view of the market and its size, then it would be obvious that there are serious opportunities for co-operation between Acorn companies.'

> **'There are serious opportunities for co-operation between Acorn companies'**

This is where you realise that Julian Pixton is talking good sense. Never, in all these interviews, has anyone suggested anything remotely like co-operation between competitors. But it sounds like a good idea, at least in theory.

'At the moment there are so many companies re-inventing the wheel,' Julian points out. 'Developing Risc OS applications involves so much more effort than for other platforms because the operating system does a lot less work than you would expect it to, and the development tools are less rich. Look at *Visual C++ for Windows*: it's an excellent programmer's platform, but there's nothing like it for the Acorn range.

'Because developers have to write so much themselves, everyone ends up with different systems for things like colour selection in their applications. On other platforms this sort of thing is standardised.'

One area that Apple is so strong is data exchange. We've talked about *Apple File Exchange* in the Letters page before, but no one seems to be doing anything about it. This is surely a problem. Julian agrees: 'It takes a company like Computer Concepts to go out on a limb and implement something like OLE. If the operating system is not going to provide code to do it automatically, then we need more co-operation between companies to reduce duplication and present a standard interface to the user.

'The problem is down to resources within Acorn and third-party companies. Acorn has been putting a lot of effort into important areas like networking, and they have really made steps there. How many companies can claim to have an Ethernet system which is backwardly compatible with a 14-year-old system like Econet?

'However, there are areas which are lacking. There is still no standard file format for sharing text between applications while keeping formatting and font information. That seems to me to be completely ludicrous; other platforms have file formats like RTF, but why doesn't Risc OS? It's crazy.'

So, is it possible that the Acorn community can co-operate more to improve the market as a whole? That remains to be seen, but partnerships like Acorn and AB Dick producing professional publishing systems, and Longman and Acorn combining to produce *PIMS* to manage primary schools, are success stories.

And what about Longman itself? Looks like this year could be quite exciting...

'It annoys me when people assume we just ship software to schools,' says Julian. 'Last year we shipped over 52,000 units on the Arc, which is more than anyone else can claim, and we got 70% of the spreadsheet market. It's difficult when you have an image of "education" and nothing else. Rest assured, that will change this year.'

Original **Outline Fonts** *from RISC User*

Atlantis
Austin
Blacklet
Chancellor
Classroom
Gangster
Italian
Mercury
MILITARY
Wessex

RISC USER FONTS DISC 1

Buick
EXTREMITY
Hudson
JOPPA
Marti
NEWTOWN
OLDTOWN
Salisbury
SLAB
Rob_Roy

RISC USER FONTS DISC 2

Citril
Crikey
Curtis
DYNAMIC
Jamjar
JungleDrum
MILLIGAN
STCUTHBERT
Waverly
SELLERS

RISC USER FONTS DISC 3

Each disc contains ten high quality outline fonts (all available exclusively from RISC Developments) in a variety of different faces. Each disc also contains a number of applications for further processing and manipulation of outline fonts. The fonts and applications are supplied on a single disc with a comprehensive menu system making everything very easy to use.

FONTS DISC 1

Font disc 1 also includes Acorn's Outline Font Manager plus the following applications:

ShowFonts - displays or prints outline fonts
DrawFont - converts outline fonts for use in Draw
FontSwap - allows font substitution
FontCtrl - allows easy tuning of font configuration
FontRead - downloads font definitions to PostScript printers

FONTS DISC 2
FONTS DISC 3

Both Fonts Discs 2 and 3 contain the following additional applications:

FontSpace - allows change of character spacing
Kerner - allows you to kern text (RISC OS 3)
ShowFonts - displays or prints outline fonts for reference
Ligature - allows easy incorporation of ligatures, smart quotes and dashes in your text (RISC OS 3 only)

PFD1a	**Fonts Disc 1**	**10.17 ex. VAT**
PFD2a	**Fonts Disc 2**	**10.17 ex. VAT**
PFD3a	**Fonts Disc 3**	**10.17 ex. VAT**

Please add £ 1.00 p&p.

SAVE £5! Buy all three fonts discs for just £25.51 ex VAT (code PFDA).

Basic Programmer's Toolkit



£15.28
ex VAT
p&p £2
Code PBK1b

- **Program Formatter & Indenter** allows listings to be restructured for readability with user-selectable options.
- **Program Compacter** a front end for the Basic CRUNCH command, allowing it to be used directly from the Desktop.
- **Basic Differences** finds the differences between two versions of a Basic program, which are saved as an Obey file.
- **SWI Translator** converts SWI names within a program to their equivalent numbers and vice versa, or optionally replaces them with variables.
- **Program Viewer** provides a variety of options for viewing Basic programs, such as a hex dump, keywords etc., decoded and interpreted for ease of reference.
- **Program Analyser** provides analysis of the variables, procedures and functions used in a Basic program.
- **Program Printer** makes printing of program listings straightforward and easy, including dual column formats if required.
- **Procedure Library Manager** system for managing a library of commonly used functions and procedures.
- **SWI Lister** provides a convenient display of all known SWI calls.
- **HELP Front End** a front-end for Basic's HELP command allowing it to be used directly from the Desktop.
- **Procedure/Function Library** a collection of use-

Wimp Programmer's Toolkit



£18.68
ex VAT
p&p £2
Code PWK3b

- **Basic Procedure & Function Analyser** provides a complete analysis of the structure of your program.
- **Pollmask** generates Wimp poll mask numbers.
- **Flags** - calculate Icon, Window and Menu flags.
- **Basic Variable Lister** lists all variables, procedures and functions used in a program.
- **Tempi** analyses window template files and presents the information in readable form.
- **RISC User Wimp Library** of Wimp applications and procedures.
- **Wimp Debugger** - debug Wimp-based programs while testing & running them.
- **EasyWimp** provides a ready-made Wimp application shell.
- **Pointer** - locate missing icons from windows.
- **FormEd** - version 1.26 of Acorn's Template Editor for designing windows and icons.
- **Iconbar Shell Generator** - build simple multi-tasking programs by creating a shell.
- **Desktop File Loader** allows you to load a program from the Desktop, rather than run it.
- **Menu Editor** allows you to create and edit menu structures for use in your own programs.
- **Wimp Message Monitor** provides a means of monitoring the Wimp polling system.
- **Spyglass** displays the contents of memory allocated to any task currently running.
- **WimpAid** displays pointer, window and icon parameters dynamically on screen.

RISC developments

RISC Developments Limited
117 Hatfield Road, St Albans, Herts, AL1 4JS Tel. 0727 843600 Fax. 0727 860263



The Ultimate
CD drive

A NEW QUAD SPEED, 6 DISC CD-ROM DRIVE

The DRM-604X is a new high end CD ROM drive — an ideal solution for schools with networks and for professional users. The Pioneer's 'Quadraspin' technology completely overcomes the speed problem. By rotating the disc at four times the normal speed, it can acheive a sustained 600 kilobytes per second transfer rate using a good SCSI.

Another unique advantage is the built in 6 disc magazine and autochanger — in other words this drive does the job of six separate CD-ROM drives. It's ideal for networks, since this allows six discs to be available on the network, from just one drive. For added security the magazine can be locked into the drive.

The DRM-604X is multi-session PhotoCD compatible — and because of its speed it's ideal for the large files typical of PhotoCD. It can also play standard audio compact discs, with audio output to headphones and RCA connectors.

The DRM-604X is suitable for any model of the Archimedes with an Acorn compatible SCSI interface. The package includes the drive and Computer Concepts drivers, full user manual, audio and power cables and a free copy of Computer Concepts ArtWork clip-art CD (containing over 700 examples of work created in ArtWorks, dozens 24bpp photographs, a demo version of AudioWorks and some sample audio files).

RRP: £999.00 +VAT (£1173.82 incl.)

Requires CDFS 2.2 (contact your SCSI board supplier if you require an upgrade).

A single speed CD drive can cost £300–£400, when the Pioneer at just £1000 offers four times the speed and six times the number of discs — excellent value for money.

Computer Concepts Ltd
GADDESDEN PLACE • HEMEL HEMPSTEAD • HERTS • HP2 6EX • TEL. 0442 63933 • FAX 0442 231632 • Email: Info@CConcepts.co.uk